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Wm Kennedy
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MATHEMATICAL TABLES.

CONTAINING

THE LOGARITHMS OF NUMBERS;

LOGARITHMIC SINES, TANGENTS, AND SECANTS, TO SEVEN DECIMAL PLACES.

AND

A TRAVERSE TABLE.

TO WHICH ARE PREFIXED,

LOGARITHMICAL ARITHMETIC;

AND

PLANE TRIGONOMETRY,

In which the order of the Cafes is that obſerved in the Appendix to *Dr. SIMSON's EUCLID.*

ALSO

EXAMPLES IN PRACTICAL GEOMETRY,

Adapted to the Propoſitions in Dr. GREGORY's Treatiſe, wherein the help of the following Tables is needed.

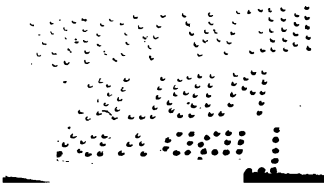
The whole being calculated either to accompany the above Books, or to be ſtudied ſeparately.

BY J. BROWN, MATHEMATICIAN.

EDINBURGH:

PRINTED FOR P. HILL AT THE CROSS.

MDCCLXXXIX.



PREFACE.

A JUST and accurate acquaintance with the firſt principles of ſcience is a neceſſary ſtep towards our future progreſs; and if aſſiſted by diligent inveſtigation and habitual ſtudy, will aſſuredly lead to eminence and perfection, whatever be the ſubject of inquiry.

While for many years the attention of the public has been engaged by ſundry new treatiſes on the elementary and practical parts of this ſcience, ſtill the memory and writings of that ancient mathematician EUCLID, are held in great eſtimation; for ſuch is the nature of mathematical truth, that although it may be repreſented in various points of view, ſtill it remains the ſame, and cannot be controverted. There are ſome who think that Dr. Simſon's tranſlation of Euclid's Elements, is rather too prolix in its demonſtrations, whilſt others eſteem it on that account, and think its copious expreſſion well calculated for improving the mind of youth.

The elements of plane Trigonometry are annexed to moſt of the editions of Simſon's Euclid, but not having examples under the caſes, are on that account incomplete. The author of the following pages having been employed to prepare Tables of Logarithms, &c. to be ſold at a low price, thought it would make them more acceptable to prefix an abſtract of Logarithmical Arithmetic, and the principles of Plane Trigonometry, with proper examples under each caſe, alſo a number of examples in Practical Geometry, adapted to Dr. Gregory's excellent treatiſe on that ſubject. As the whole is compriſed within ſmall bounds, only thoſe propoſitions which relate to the meaſuring of heights and diſtances, are exemplified.

In the Trigonometry, the principles are illuſtrated, in a manner ſomewhat differing from the demonſtrations commonly uſed, in order to obviate a difficulty which often occurs to beginners, from the uſual way of expreſſing both a magnitude and a length, by the ſame ſtraight line, or ſide of a triangle.

The tables which follow have been examined with great care, and therefore, it is hoped, they will be found accurate; and as they are wholly filled up to ſeven places of decimals, calculations may be performed by them with ſufficient exactneſs.

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TABLES.

1. Logarithms of Numbers from 1 to 10,000.
2. Logarithmic Sines, Tangents, and Secants, for every Degree and Minute of the Quadrant.
3. Difference of Latitude and Departure; to which is prefixed, Examples ſhowing its Uſe.
4. Rumbs, ſhowing the Degrees, Minutes, &c. to every Point and Quarter Point of the Compaſs.

OF LOGARITHMS.

The Nature and Uſe of Logarithms.

LOGARITHMS are the ſeries of an arithmetical progreſſion, uſed as the indices adapted to the terms of a geometrical ſeries, beginning at unity, and increaſing or decreaſing to infinity; ſo that, in the arithmetical ſeries, a cypher, being the firſt term, is the index of unity in the geometrical ſeries, 1 the index of the 2d, &c.

Thus, { 0, 1, 2, 3, 4, 5, &c. Indices or logarithms.
1, 2, 4, 8, 16, 32, &c. Geometrical ſeries.

Or, { 0, 1 2, 3, 4 5, &c. Indices or logarithms.
1, 3, 9, 27, 81, 243, &c. Geometrical ſeries.

Or, { 0, 1, 2, 3, 4, 5, &c. Indices or logarithms.
1, 10, 100, 1000, 10000, 100000, &c. Geometrical ſeries.

The ſame indices ſerve equally for any geometrical ſeries, and it is evident, that every term in the arithmetical ſeries, expreſſes the diſtance of its correſpondent term, in the geometrical ſeries, from unity; and, by interpolation, the whole ſyſtem of numbers, whether integers or fractions, may be brought into the geometrical ſeries, and receive their proportional logarithms.

All modern tables of logarithms are calculated according to the laſt of the above three ſeries, as being allowed to be the moſt convenient. In which ſeries, all the logarithms of numbers between 1 and 10 are decimals of unity, and all between 10 and 100 are an unit with decimals, being greater than 1, but leſs than 2, &c.

The numbers in a geometrical ſeries are ſo related to their indices or logarithms, that the multiplication of natural numbers, anſwers to the addition of their logarithms; the diviſion of numbers to the ſubtraction of their logarithms; the raiſing of powers, to the multiplying the logarithm of the root by the index of the power; and the extracting of roots, to the dividing the logarithm of the given

number, by the index of the root to be extracted.—Thus the uſe of logarithms is to ſhorten the operations of multiplication, diviſion, &c. in common arithmetic.

To anſwer which end, tables of logarithms have been made for all numbers under 10000 or 100000, from which the logarithm of any number may be found, to ſeven places of decimals; and the number correſponding to any logarithm, to five, ſix, or ſeven figures accordin to the extent of the tables.

Since the logarithm of 1 is 0, of 10 is 1, of 100 is 2, &c. the logarithms between theſe numbers are decimals, and their correſponding numbers may be either integers, decimals, or mixt numbers; for the ſame figures, whatever be their denomination, have the ſame decimal logarithm, the only difference is in the index or integral part of the logarithm: The index being always an unit leſs than the number of figures in the natural number.

If the natural number conſiſt of only one place of integers, the index of its logarithm will be 0, if of two places, the index will be 1, if of three places, index 2, &c. And the ſame figures made negative, by placing the ſign − minus above them, will become the indices of the logarithms of decimals.——Thus, if the firſt ſignificant figure of the natural number be in the place of primes, 2ds, 3ds, 4ths, &c. the index of its logarithm will be reſpectively $-1, -2, -3, -4$, &c. Some, to avoid the negative numbers in adding or ſubtracting, uſe their complements to 10; and inſtead of $-1, -2, -3, -4$, &c. make the indices for decimal numbers 9, 8, 7, 6, &c.

An example of a natural number with its correſponding logarithm, in ſeveral variations.

Number.	Logar.	
2651	3.4234097	
265.1	2.4234097	
26.51	1.4234097	
2.651	0.4234097	Logar.
.2651	−1.4234097	— or 9.4234097
.02651	−2.4234097	— or 8.4234097
.002651	−3.4234097	— or 7.4234097

Note, In the operations of addition and ſubtraction of logarithms, the negative indices have a contrary effect to that of the decimal part, *viz.* when the logarithm is to be added, the negative index muſt be ſubtracted, and *vice verſa*. But when the complements of negative indices are uſed, they are added or ſubtracted as the decimal part, and 10 ſubtracted from the index of the ſum or difference, for every complement uſed.

Of finding the Logarithms of Numbers, or the Numbers corresponding to given Logarithms.

1. *To find the Logarithm of any whole number under* 100.

Look for the number under N. in the first page of the logarithmic table, then immediately on the right of it is the logarithm sought with its proper index.—So the log. of 64 is 1.8061800, and the log. of 72 is 1.8573325.

2. *To find the Logarithm of any number between* 100 *and* 1000.

Find the given number in some of the following pages, in the first column under N. and immediately on the right of the number stands the decimal part of the logarithm, in the column marked 0 at top and bottom, to which prefix the proper index.—Thus the log. of 364 is 2.5611014, and the log. of 3.33 is 0.5224442.

3. *To find the Logarithm of any number consisting of four places.*

Seek the three higheſt figures in one of the left-hand columns, as in the laſt article, and the unit's figure at the top or bottom, tracing it till you find the logarithm in a ſtraight line with the three figures in the column on the left, which with its proper index will be the logarithm ſought.—Thus the log. of 7464 is 3.8729716, and that of 378.5 is 2.5780659, and that of 3.132 is 0.4958218.

4. *To find the Logarithm of any number conſiſting of* 5, 6, *or* 7 *places.*

Find the logarithm of the firſt four left-hand figures, as in the laſt article, to which prefix the index according to the figures in the natural number, then take the difference between the logarithm found, and the next greater in the table, which multiply by the remaining figures of the natural number, and cut off from the product as many figures as the number multiplied by, add the reſt of the product to the logarithm before found, the ſum is the true logarithm.

EXAMPLES.

1. Required the logarithm of 36548.

Log. of 36540 is	4.5627685	Diff.	1189
Add	951	×	8
Log. of 36548 is =	4.5628636		951|2

2. What is the logarithm of 508793?

Log. of 508700 is	5.7064617	Diff. 854
Add	794	× 93
Log. of 508793 =	5.7065411	2562
		7686
		794122

In like manner the log. of 56789.79 will be 4.7542703.

5. *To find the Logarithm of a Vulgar Fraction, or of a mixt number.*

If a mixt number be given, reduce it to an improper fraction; then from the logarithm of the numerator subtract the logarithm of the denominator, and the remainder will be the logarithm of the fraction sought. Or reduce the vulgar fraction to a decimal, and find its logarithm as before.

Ex. 1. To find the logarithm of $\frac{3}{16}$ or .1875.

From log. of 3 =	0.4771213
Take log. of 16 =	1.2041200
Rem. log. of $\frac{3}{16}$ or .1875 =	-1.2730013

2. To find the logarithm of $13\frac{1}{4}$ or $\frac{55}{4}$.

From log. of 55 =	1.7403627
Take log of 4 =	0.6020600
Rem. log. of $\frac{55}{4}$ or 13.75 =	1.1383027

6. *To find the natural Number, answering to any given Logarithm.*

Look for the decimal part of the given logarithm, in the different columns, until you find it, either exactly, or the next less. And in a line with the logarithm found, in the left-hand column marked N. you have three figures of the number sought, and on the top of the column where the logarithm found, is, you have one figure more, which annex to the other three, and point it according to the index of the given logarithm.

But if the logarithm be not found exactly in the table, subtract the logarithm found in the table from the given one, and divide the remainder by the difference between the logarithm found, and the next greater in the table, annexing one cypher to the dividend for each figure to be found; the quotient annexed to the former figures, gives the number answering to the logarithm.

Ex. To find the number anſwering to the logarithm 3.2335678.

The given logarithm = 3.2335678
The next leſs tab. log. is the log. of 1712 = 3.2335038

Dividend = 640

Next greater log. = 3.2337574
Next leſs = 3.2335038

Rem. = 2536) 640.000 (252

So the number ſought is 1712.252 making four places of integers for the index 3.

In like mannner the natural numbers correſponding to the following logarithms may be found.

Log.		Num.
1.2345678	=	17.162
3.7343003	=	5423.758
−1.0921406	=	0.1236348
4.6123004	=	40954.39

Of Logarithmical Arithmetic.

1. *Multiplication by Logarithms.*

Add together the logarithms of all the factors, and the ſum will be the logarithm of the product. Obſerving to add to the ſum of the affirmative indices, what is carried from the ſum of the decimals of the logarithms: And that the difference between the affirmative and negative indices is to be taken from the index to the logarithm of the product.

Ex. 1. To multiply 23.14 by 5.062.

Log. of 23.14 = 1.3643634
Log. of 5.062 = 0.7043221

Prod. 117.1347 = 2.0686855

2. To multiply 2.581926 by 3.457291.

Log. of 2.581926 = 0.4119438
Log. of 3.457291 = 0.5387359

Prod. 8.92647 = 0.9506797

3. To multiply 3.902, and 597.16, and .0314728 all together.

3.902 its log.	=	0.5912873
597.16	=	2.7760907
.0314728	=	−2.4979353
Prod. 73.33533	=	1.8653133

The −2 cancels the affirmative 2, and the 1 carried from the decimal is put down as the index of the product.

4. To multiply 3.586, and 2.1046, and .8372, and .0294 all together.

3.586 its log.	=	0.5546103
2.1046	=	0.3231696
.8372	=	−1.9228292
.0294	=	−2.4683473
Prod. .1857618	=	−1.2689564

Here the 2 carried from the decimal cancels the −2, and −1 remains.

2. *Diviſion by Logarithms.*

From the logarithm of the dividend ſubtract the logarithm of the diviſor, the remainder is a logarithm whoſe correſponding natural number is the quotient. But firſt obſerve to change the ſign of the index of the logarithm of the diviſor, from negative to affirmative, or from affirmative to negative; then take the ſum of the indices, if they be of the ſame kind, or their difference when of different ſigns, with the ſign of the greater, for the index to the logarithm of the quotient. And when one is borrowed in the left-hand place of the decimal part of the logarithm, add it to the index of the logarithm of the diviſor when that index is affirmative, but ſubtract it when negative; then change the index thus found, and work as before.

Ex. 1. To divide 24163 by 4567.

Dividend 24163 its log.	=	4.3831509
Diviſor 4567	=	3.6596310
Quot. 5.290782	=	0.7235199

2. To divide 37.149 by 523.76.

Dividend 37.149 its log.	=	1.5699471
Diviſor 523.76	=	2.7191323
Quot. .07092752	=	−2.8508148

3. Divide .06314 by .007241.

Dividend .06314 its log.	=	−2.8003046
Diviſor .007241	=	−3.8597985
Quot. 8.719792	=	0.9405061

Here 1 carried to −3 makes −2, which ſubtracted from −2 in the dividend 0 remains, as the index of the quotient.

4. Divide .7438 by 12.9476.

Dividend .7438 its log.	=	−1.8714562
Diviſor 12.9476	=	1.1121893
Quot. .05744694	=	−2.7592669

In this example the affirmative 1 being changed, and added to the −1 above, the index of the quotient is −2.

3. *Rule of Three, or Proportion.*

From the ſum of the logarithms of the ſecond and third terms, ſubtract the logarithm of the firſt, the remainder will be the logarithm of the fourth term. Or in any compound proportion, add together the logarithms of all the terms to be multiplied, and from that ſum take the ſum of the logarithms of the other terms, the remainder will be the logarithm of the term ſought.

Note, Inſtead of ſubtracting any logarithm, if its arithmetical complement be added, the reſult will be the ſame. By its complement is meant the logarithm of the reciprocal of a given number, or what its logarithm wants of 0 or of 10, changing the radix from 0 to 10.—To find the complement, begin at the left hand, and ſubtract each figure from 9, except the laſt ſignificant figure, which muſt be taken from 10. But when the index is negative, add it to 9, and ſubtract the reſt as before, and for every complement added, ſubtract 10 from the laſt ſum of the indices.

Ex. 1. If 72.34 lbs. coſt L. 2.519, what will 357.4862 lbs. coſt?

As 72.34 its log.	=	1.8593785
Is to 2.519	=	0.4012282
So is 357.4862	=	2.5532592
To 12.44827 = L. 12 : 8 : 11¼	=	1.0951089

Or, as 72.34 comp. log.	=	8.1406215
Is to 2.519	=	0.4012282
So is 357.4862	=	2.5532592
To 12.44827	=	1.0951089

2. To find a third proportional to 12.796 and 3.24718.

As 12.796 comp. log.	= 8.8929258
Is to 3.24718 log.	= 0.5115064
So is 3.24718	= 0.5115064
To .8240216	= −1.9159386

3. To find a 4th proportional to .379145, as .85132 is to .0649.

As .0649 comp. log.	= 11.1877553
Is to .8532 log.	= −1.9300928
So is .379145	= −1.5788054
To 4.973401	= 0.6966535

4. What is the intereſt of L. 279 : 5s. for 274 days, at the rate $4\frac{1}{2}$ per cent. per annum?

As { 100 comp. log.	= 8.0000000
{ 365	= 7.4377071
Is to 4.5 its log.	= 0.6532125
So is { 279.25	= 2.4459932
{ 274	= 2.4377506
To 9.433296 = L. 9 : 8 : 8.	= 0.9746634

4. *Involution, or the Raiſing of Powers.*

Multiply the logarithm of the given number by the index of the power propoſed, and the product will be the logarithm of the power ſought.

Note, In multiplying a logarithm having a negative index by an affirmative number, the product will be negative: But what is carried from the decimal of the logarithm is affirmative, therefore the difference will be the index of the product, and of the ſame kind with the greater.

Ex. 1. Raiſe 25.791 to the 2d power, or ſquare.

Root 25.791 its log.	= 1.4114682
Index	= 2
Square 665.1756	= 2.8229364

2. Required the cube of 30.7146.

Root 30.7146 log.	= 1.4873449
Index	= 3
Cube 28975.75	= 4.4620347

3. What is the fourth power of .09163 ?

Root .09163. log. = −2.9620377
Index = 4

Biquadrate .0000704938 = −5.8481508

The 3 carried, taken from −8, leaves −5 the index of the product.

4. Raise 1.0045 to the 365th power ?

Root 1.0045 its log. = 0.0019499
365

97495
116994
58497

Power 5.148888 = 0.7117135

5. *Evolution, or Extraction of Roots.*

Divide the logarithm of the power or given number by its index, and the quotient will be the logarithm of the root sought.

Note. When the index of the logarithm is negative, and the divisor is not exactly contained in it without a remainder, increase it by such a number as will make it exactly divisible; and carry the units borrowed, as so many tens, to the left-hand figure of the decimal part of the logarithm, which divide by the index of the root.

Ex. 1. To find the square root of 365.

2) 2.5622929 = the log. of 365.

Root 19.10498 = 1.2811465

2. To find the cube root of 12345.

3) 4.0914911 = the log. of 12345.

Root 23.11162 = 1.3638304

3. Extract the 10th root of 2 ?

10) 0.3010300 = the log. of 2.

Root 1.071773 = 0.0301030

4. Extract the 365th root of 1.045 ?

365) 0.0191163 = the log. of 1.045.

Root 1.000121 = 0.0000524

5. Required the ſquare root of .093?

2) −2.9684829 = the log. of .093.

Root .304959 = −1.4842415

6. Find the cube root of .00048?

3) −4.6812412 = the log. of .00048.

Root .07829735 = −2.8937471

In the laſt example you add 2 to −4, and then 3 the diviſor meaſures it exactly, −2 is therefore the index to the root; and, the two borrowed, being carried to the decimal part, and divided by the index, gives the decimal logarithm of the root as above.

OF LOGARITHMIC

SINES, TANGENTS, AND SECANTS.

1. *To find the logarithmic ſine, tangent, or ſecant of any number of degrees and minutes.*

If the number of degrees be leſs than 45°, ſeek them at the top of the page, then in a line with the given number of minutes, in the left-hand columns, under the word ſine, tangent, or ſecant, you have their reſpective logarithm.

If the number be above 45° and leſs than 90°, ſeek them at the bottom of the page, then againſt the minutes in the right-hand columns, and above the word ſine, tangent, or ſecant, reſpectively, you have the logarithm ſought.

When the degrees exceed 90° take their ſuppliment, that is, ſubtract the given degrees and minutes from 180°, and look out the logarithm of the remainder as above.

EXAMPLES.

			Sines.	Tangents.	Secants.
18°	15′	=	9.4957716——	9.5181855——	10.0224140
33	45	=	9.7447390——	9.8248926——	10.0801536
47	9	=	9.8651849——	10.0326241——	10.1674391
64	56	=	9.9570397——	10.3300094——	10.3729697
135	30	=	9.8456618——	9.9924197——	9.8456618
Supplt. 44	30				

Note. The logarithmic co-ſine, co-tangent, or co-ſecant of any number of degrees and minutes, may be found in the ſame manner as above, in the columns marked co-ſine, co-tangent, co-ſecant reſpectively.—Thus the co-ſine of 42° 51′ is 9.8651849, which is the ſine of its compliment 47° 9′.——The co-tangent of 71° 45′ is 9.5181855 = to the tangent of 18° 15′, and the co-ſecant of 56° 15′ is 10.0801536 = to the ſecant of 33° 45′.

2. *To find the ſine, tangent, or ſecant of any number of degrees minutes and ſeconds.*

Find the ſine, tangent, or ſecant of the degrees and minutes given, as before, which ſubtract from the ſine, tangent, or ſecant of the next ſuperior minute; then, as 60″ is to the difference, ſo is the number of ſeconds given, to the part to be added for the ſeconds.

Ex. Required the logarithmic ſine of 19° 24′ 36″?

19° 25′ its ſine is 9.5217074
19° 24′ ——— 9.5213488

Difference = 3586 Then,

As 60″ : 3586 :: 36″ : 2151, which added to 9.5213488, gives 9.5215639 the ſine of 19° 24′ 36″. The part to be added for tangents and ſecants, correſponding to ſeconds, is found in the ſame manner.

3. *To find the number of degrees and minutes correſponding to any given logarithmic ſine, tangent, or ſecant.*

Seek the neareſt to the given ſine, tangent, or ſecant, in the reſpective columns; if you find it, or the next leſs, in the left-hand column of ſines, &c. you have the number of degrees on the top of the page, and the minutes on the left, counting downwards. But if you find it in the ſecond, ſine, tangent, or ſecant, column, you have the degrees at the bottom of the page, and the minutes on the right-hand, counting upwards.

EXAMPLES.

Sines.		Tangents.	
9.7246320 =	32° 2′	9.87645464 =	36° 57′
9.9532976 =	63 54	10.1097654 =	52 9

Secants.
10.0436142 = 25° 15′
10.4236310 = 67 51

4. *To find the ſeconds correſponding to the remainder of any logarithmic ſine, tangent, or ſecant, after the degrees and minutes are found.*

If the given ſine, tangent, or ſecant be found exactly in the table, there will be no remainder for ſeconds: But if there be a remainder, the correſponding ſeconds may be found by the following proportion, *viz.* As the difference between the tabular ſine, tangent, or ſecant, next greater than the one given, and the tabular one next leſs, is to 60″; ſo is the difference between the given one, and the tabular one next leſs than it, to the number of ſeconds ſought.

Ex. 1. To find the degrees, minutes, and ſeconds correſponding to the logarithmic ſine 9.8800540
Next leſs in the table = 9.8799634 = 49° 20′

Diff. = 906
From next greater in the table, 49° 21′ = 9.8800719
Take the next leſs, as above = 9.8799634

Diff. = 1085

Then, as 1085 : 60″ : : 906 : 50″, which, placed after the degrees and minutes, gives 40° 20′ 50″, the anſwer.

2. The degrees, minutes, and ſeconds, anſwering to the logarithmic tangent, 10.1994710 = 57° 43′ 6.″

Note. The logarithms and quantities of obtuſe angles may be found by the preceding methods, if the ſuppliments, or what they want of 180°, be taken; for the logarithmic ſine, or tangent of 122° 17′, is the ſame as the logarithmic ſine, or tangent of 57° 43′—But the ſecant of an obtuſe angle is never uſed.

5. *To find the natural ſine, tangent, or ſecant of any angle, or number of degrees and minutes.*

Find the logarithmic ſine, tangent, or ſecant by the table, cancel its index, and find the neareſt logarithm to it, in the table of common logarithms, the natural number correſponding to it, is the natural ſine, tangent, or ſecant reſpectively. If the index of the logarithmic ſine, tangent, &c. be under 10, prefix to the natural ſine, &c. as many ciphers as make the compliment of its index to 9: But if the index be 10, 11, 12, or 13, then one, two, three, or four figures reſpectively, are pointed off for integers, the reſt are decimals

EXAMPLES.

	Nat. ſines.	Nat. tang.	Nat. ſecants.
23° 20′ =	.3960798	.4313579	1.0896820
— 30′ =	.0087265	.0087269	1.0000381
87° 15′ =	.9988484	20.818828	20.842830
89° 30′ =	.9999619	114.58865	114.59301

6. To find the logarithmic and natural verſed ſine of any angle.

The logarithmic ſine of half the given angle multiplied by 2, and the ſine of 30°, *viz.* 9.6989700, ſubtracted from the product: Or, .3010300, added to the product, and radius or 10 deducted from the index, gives the logarithmic verſed ſine; which, ſeek in the table of common logarithms, the natural number correſponding to it, will be the natural verſed ſine, under the ſame predicaments as the natural ſine

Ex. To find the logarithmic, and natural verſed ſine of 76° 48′.
Half 76° 48′ is 38° 24′ its log. ſine is 9.7931949
2

Product = 19.5863898
Subtract ſine of 30° = 9.6989700

Logarithmic verſed ſine of 76° 48′ = 9.8874198, and correſponding, to its decimal .8874198, you have the natural verſed ſine of 76° 48′ = .771649.

OF PLANE TRIGONOMETRY.

TRIGONOMETRY is an art, teaching the method of meaſuring and calculating the ſides and angles of plane triangles, from certain parts given. Of the ſix parts of a triangle, the three ſides and three angles; if two ſides and an angle, or two angles and a ſide, or if the three ſides be given, the reſt may be found by the help of trigonometry.

Plane triangles are of two kinds, *right-angled*, or ſuch as have one

right-angle; and *oblique-angled*, or ſuch as have all the angles oblique. There are alſo two kinds of oblique-angled triangles, *viz.* *obtuſe-angled*, or ſuch as have one angle greater than a right-angle; and, *acute-angled*, or ſuch as have each of the angles leſs than a right-angle.

In right-angled triangles, the ſide oppoſite to, or ſubtending the right-angle, is called the *Hypothenuſe*: the other ſides, which contain the right-angle, are ſometimes called *Legs*: Or, the one is denominated the *Baſe*, the other, the *Perpendicular*.

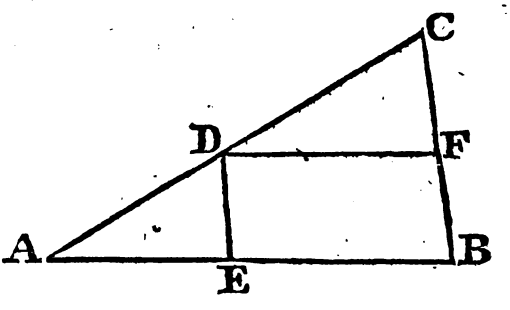
From this theorem, that the three angles of every plane triangle are together equal to two right angles, or 180°, the following very uſeful corollaries ariſe.

1. When two angles of a triangle are given, the third is alſo ſaid to be given; for it is the ſuppliment of the other two, and may be found by ſubtracting their ſum from 180°.

2. When one angle of a triangle is given, the ſum of the other two may be found, by ſubtracting the given angle from two right angles, or 180°.

3. If one angle of a triangle be right, the other two are acute, and together make another right-angle; and, if one of the acute angles be given, the other is alſo given, being the compliment of the other given one, or what it wants of 90°.

Triangles are ſaid to be *ſimilar* to one another, which have their angles equal, each to its correſponding angle; and the ſides about the equal angles of ſimilar triangles are proportional. *Euclid*, B. 6. *Pr.* 4.



Let ABC be any triangle, and from any point E in the ſide AB, draw ED parallel to B C; and, draw any ſtraight line DF, parallel to AB, the triangles AED and DFC are ſimilar to the triangle ABC, and to one another.

Becauſe the line AB falls upon the two parallels ED and BC, the angle AED is equal to the angle ABC; and becauſe AC falls upon the ſame parallels, the angles ADE and ACB are equal, and the angle at A is common to the two triangles; therefore the triangle AED is ſimilar to the triangle ABC.—In like manner may the triangle DFC be demonſtrated to be ſimilar to the triangle ABC; therefore the triangle AED is alſo ſimilar to the triangle DFC.

Hence we have the following Proportions, namely,

AE : ED : : AB : BC.	CF : FD : : CB : BA.
ED : DA : : BC : CA.	FC : CD : : BC : CA.
DA : AE : : CA : AB.	CD : DF : : CA : AB.

Upon theſe, and the like proportions, ariſing from ſimiliar triangles, depend all the calculations of plane trigonometry; as alſo, the conſtruction of triangles geometrically, and the method of meaſuring, by proper inſtruments, the parts required.

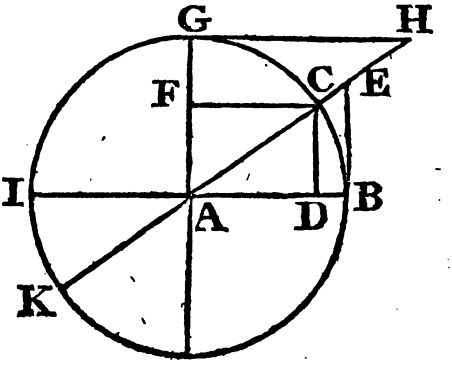
The term *radius*, applied to any right-angled triangle, is that part, or the whole of the hypothenuſe, or of a ſide, which is taken as the ſemidiameter of a circle deſcribed about one of the acute-angles as a centre, and may be at any diſtance from that centre. And as many radii as are aſſumed, ſo many different arches are there, expreſſing the quantity of an angle; each of theſe has a ſine, tangent, ſecant, and verſed-ſine of the ſame angle. Hence, the ſine, tangent, &c. may be expreſſed by innumerable ſtraight lines, which may be meaſured by feet, yards, miles, &c. and all in the ſame proportion to each other, as the radii aſſumed.

The radius is always equal to the ſine of a right-angle, or 90°, or to the tangent of 45°; and, in trigonometrical calculations, is the ſame as that uſed in the table of ſines, tangents, and ſecants, or the *trigonometrical canon* 10.0000000.

Note. The co-ſine, co-tangent, co-ſecant, &c. of any angle, is the ſame as the ſine, tangent, or ſecant, of the compliment of that angle. And the ſine, tangent, or ſecant of any angle, is the ſame with the ſine, tangent, or ſecant of its ſupplement.

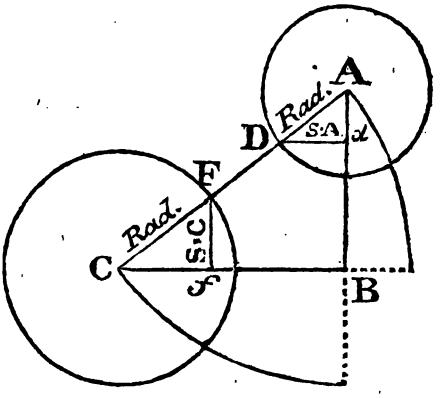
The different Magnitudes, uſed in the ſolution of Triangles, are repreſented by the following Figure:

Of the angle BAC, or the arch BC, the line AB is called the Radius;—
BE the Tangent;
CD the Sine;
DB the verſed Sine;
AE the Secant:—and,
FC or AD the Co-ſine;
GH the Co-tangent;
AH the Co-ſecant;
F G the co-verſed Sine.



PROPOSITION 1. *In any rectilineal right-angled triangle, if the hypothenuſe, or a part of it, be made to repreſent the magnitude radius, the other ſides will become each the ſine of its oppoſite angle; or will be in the ſame proportion to the ſine, that the whole hypothenuſe is to the part made radius.*

Let ABC be a triangle, rectangular at B; if about A as a centre, at the diſtance AC, or any part of it, as AD, a circle be deſcribed, and if, from the points F and D ſines be drawn, it is evident, that the ſide BC will be the ſine of angle A, or in the ſame proportion to the ſine, that the hypothenuſe AC is to AD the part made radius. And, if about C as a centre, circles be deſcribed in the ſame manner, AB will be the ſine of angle C, or proportional to its ſine, as CA to CF, the part made radius.

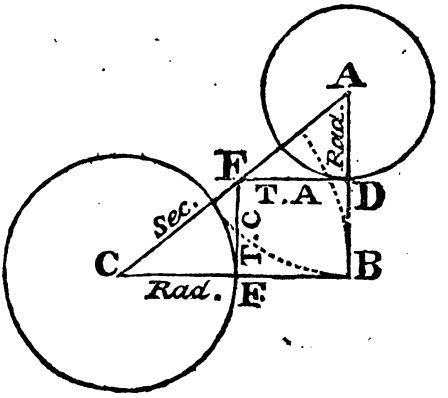


Hence ariſe the following Proportions:

Radius : Sine A : : AC : CB
Radius : Sine C : : AC : AB
Sine C : Sine A : : AB : BC

PROPOSITION 2. *In any rectilineal right-angled triangle, if either of the ſides which contain the right-angle, or a part of either, be made to repreſent the magnitude radius, the other ſide will become the tangent of its oppoſite angle, and the hypothenuſe the ſecant of the ſame angle; or they will have the ſame proportion to the tangent and ſecant, that the whole ſide, of which a part is made radius, has to the radius.*

In the triangle ABC, rectangular at B, if about the acute angles A and C as centres, circles be deſcribed, with the ſides AB and CB, or any part of them, AD and CE, as radii; and if, from the points D and E tangents be drawn, they will be parallel to the ſides, and cut the triangle proportionally; and it is evident, that BC will either be the tangent of A, and



AC its ſecant, or in the ſame proportion to the tangent and ſecant, that AB is to the part made radius; alſo that AB will either be the tangent of C and CA its ſecant, or in the ſame proportion to the tangent and ſecant, that CB is to the part made radius.

Hence ariſe the following Proportions:

R : T,A :: AB : BC.	R : T, C :: CB : BA.
R : Sec. A :: AB : AC.	R : Sec. C :: CB : CA.
T,A : Sec. A :: BC : AC.	T,C : Sec. C :: BA : AC.

Note. As the whole, or only a part of the ſide of a triangle may be taken to repreſent radius, ſo alſo a radius may be uſed which exceeds the given ſide, and, in this caſe, the ſide may be extended at pleaſure.

By means of the proportions ariſing from the above propoſitions, may all the caſes of right-angled triangles be ſolved: And, becauſe the ſines, tangents, and ſecants of ſimilar arches of circles, that is, of equal angles, are to each other in the proportion of their radii; therefore, the radius in the table of ſines, tangents, and ſecants, is to the tabular ſine, tangent, or ſecant, of either of the acute angles, as the ſide of the triangle made radius, is to the other ſide of it, which becomes the ſine, tangent, or ſecant reſpectively, of the ſame acute angle.

When the angles are given, any of the three ſides may be made radius, whence, three different pairs of proportions or analogies will ariſe. But when two ſides are given, either of them only can be made radius, and only two pairs of proportions will ariſe.

Rules for reſolving the Caſes of right-angled Triangles.

1. When a ſide is required, begin with a magnitude, and ſay, As the given magnitude repreſented by the given ſide, is to the given magnitude repreſented by the required ſide, ſo is the given ſide to that required.

2. When an angle is ſought, begin with a ſide, and ſay, As the given ſide, repreſenting the given magnitude, is to the given ſide repreſenting the magnitude required, ſo is the given magnitude to that required.—Or, the given ſide, made radius, is to the radius, as the other given ſide is to its name.

Note. The given ſides or angles of triangles in the geometrical figures, are generally marked by a daſh, — and the ſides or angles required, by a ſmall cipher.

OF RIGHT-ANGLED TRIANGLES.

CASE 1. *The two ſides of a right-angled plane triangle given to find the acute angles.*

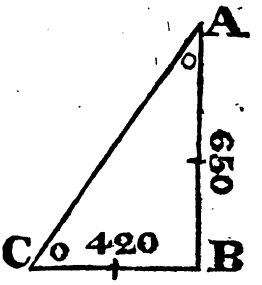
Ex. 1. In the right-angled triangle A B C, rectangular at B, let the perpendicular A B be 650 feet, and the baſe B C 420 feet; required the acute angles A and C.

Geometrically.

Make B C = 420, taken from a ſcale of equal parts, and from B raiſe the perpendicular A B = 650, from the ſame ſcale join A C to complete the triangle; then, with 60° taken from the line of chords, deſcribe arches round the angles A and C; their meaſures applied to the ſame line of chords, will give the quantity of each angle.

By Calculation, making A B Radius.

As A B 650 its log.	=	2.8129134
Is to B C 420	=	2.6232493
So is radius	=	10.0000000
To the tang. of A 32°52′	=	9.8103359



Its complement is 57° 8′ = angle C

Or, making B C radius, B C : A B : : R : T, C, of which the angle A is the complement.

General Rule for Gunter's Scale.

Extend the compaſſes from the firſt term to the ſecond, that extent will reach from the third to the fourth term. Obſerving to take the line marked *Num.* for feet, yards, miles, &c. the line mark- S. for ſines of angles, and that marked T, for tangents. The radius is 90° of ſines, and 45° of tangents.

2. In the rectilineal triangle, ABC rectangular at B, ſuppoſe the ſide AB 495.45 yards, and the ſide BC 560.5 yards; What are the acute angles A and C?

3. Suppoſe three towns ſo ſituated, that A lies $35\frac{1}{4}$ miles ſouth B, and C lies $50\frac{1}{4}$ miles weſt from B; the bearing of A from C, and of C from A, are required?

4. When the ſun ſhines, if a ſteeple, 196 feet high, project a ſhadow 237 feet 9 inches, on the horizontal plane; What is the ſun's altitude at that time?

CASE 2. *The hypothenuſe and a ſide of any plane right-angled triangle given to find the acute angles.*

Ex. 1. In the right-angled triangle ABC, rectangular at B, ſuppoſe the hypothenuſe AC, 350 feet, and the perpendicular AB, 245 feet; required the angles A and C?

Geometrically.

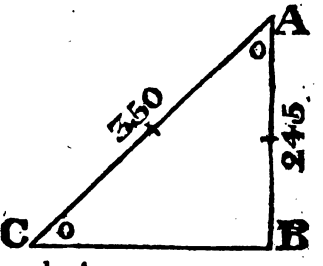
Draw B C indefinitely toward C, and at the point B make A B = 245 from a ſcale of equal parts, perpendicular to B C; and from the ſame ſcale take A C = 350, place the one foot of the compaſſes in A, the other extended to the baſe will cut it in C; then the angles are meaſured on the line of chords.

By Calculation, making A C Radius.

As AC 350 its log. = 2.5440680

Is to AB 245 = 2.3909351
So is radius = 10.

To the ſine of C 44° 39′ = 9.8468671



Whoſe complement 45° 21′ is the angle A.

Or, making AB radius, A B : A C : : R : ſec. A, of which the angle C is the complement.

2. Suppoſe the hypothenuſe of a right-angled triangle be 274.5 yards, and its baſe 196.25; What are the two acute angles?

3. Suppoſe a ſhip ſailed between ſouth and eaſt, 510 miles and thereby made her difference of latitude, or ſouthing 315 miles; Upon what courſe did ſhe ſail?

4. A ſhip ſailed from latitude 49° 30′ north, between the ſouth and weſt 135 leagues, till by a good obſervation ſhe is found in latitude 45° 15′; required the courſe on which ſhe ſailed?

CASE 3. *In any right-angled plane triangle, the two angles and a ſide given, to find the other ſide and hypothenuſe.*

Ex. 1. In the right-angled triangle ABC, rectangular at B, let the angle A be 35° 30′ and the ſide A B 294 feet; required the baſe BC and hypothenuſe AC.

Geometrically.

Make A B = 294, and at the point A, make an angle of 35° 30′ from the line of chords; and from B raiſe the perpendicular B C, Meaſure B C and A C ſeverally, by taking them in the compaſſes, and applying them to the ſcale from which A B was taken.

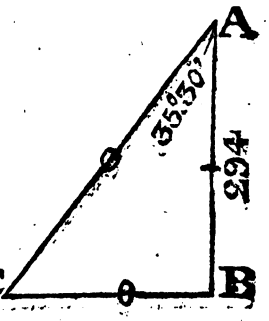
By Calculation, making AB Radius.

To find BC.

As radius	= 10.0000000
Is to the tang. of A 35° 30′	= 9.8532680
So is AB 294	= 2.4683473
To the baſe BC 209.7	= 2.3216153

To find the hypothenuſe AC.

As radius	= 10.0000000
Is to the ſec. of A 33° 30′	= 10.0788934
So is AB 294	= 2.4683473
To the hypoth. AC 352.56	= 2.5472407



Or, making BC radius.

T,C : R :: AB : BC. and T,C : Sec. C :: AB : AC.

Or, making AC radius.

S,C : S,A :: AB : BC. and S,C : R :: AB : AC.

2. In the triangle A B C right-angled at B, ſuppoſe the baſe B C 374½ yards, and the angle A 52° 8′; required the other ſide A B, and the hypothenuſe AC?

3 Suppoſe a ſhip ſail S. W by W. until ſhe has made 409 miles of ſouthing; required the diſtance ſailed, and alſo how far ſhe is weſt from the meridian of the place ſailed from?

4. Obſerving the ſun's altitude to be 30° 45′, and the ſhadow of a tree at the ſame time to fall 70 feet 3 inches diſtant from the tree, on the horizontal plane, What is the height of the tree, and what will be the length of a rope to reach from the extremity of the ſhadow to the top of the tree?

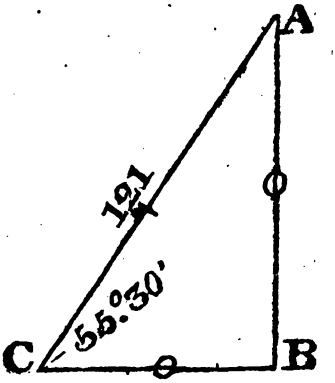
CASE 4. *The angles and hypothenuſe of any right-angled plane triangle given to find the ſides.*

Ex. 1. In the triangle A B C, right-angled at B, ſuppoſe the angle C 55° 30′ and the hypothenuſe A C 121 yards, required the ſides AB and BC?

Geometrically.

Draw the indefinite line B C, and at the point C, with 60° of chords, deſcribe an arch, and upon it lay the quantity of the angle C 55° 30′; then place the hypothenuſe 121 equal parts, from C to A, and from A let fall a perpendicular to B.—Meaſure the ſides A B and B C on the ſcale from which A C was taken.

By Calculation, making A C Radius.



To find AB.

As radius	= 10.0000000
Is to the ſine of C 55° 30′	= 9.9159937
So is the hypoth. AC 121	= 2.0827854
To the ſide AB 99.719	= 1.9987791

To find BC.

As radius	= 10.0000000
Is to the coſine of C 55° 30′	= 9.7531280
So is the hypoth. AC 121	= 2.0827854
To the ſide BC 68.535	= 1.8359134

Or making AB radius.

Sec. A : R :: AC : AB. and Sec. A : T,A :: AC : BC.

Or making BC radius.

Sec. C : T, C :: AC : AB and Sec. C : R :: AC : BC.

2. In the triangle ABC right-angled at B, let the hypothenuſe AC be 1045 feet, and the angle A 35° 56′; what is the length of the baſe and perpendicular?

3. A ſhip, from latitude 20° 30′ north, ſailed N. W. by N. 235 leagues; what is her departure from the meridian, what her difference of latitude, and the latitude come to?

4. Suppoſe the one end of a rope 350½ fathoms long, fixed at the top of an eminence, and the other end brought down to the plane below, ſo that its direction make with the plane an angle of 50° 40′; required the perpendicular height of the eminence, and the ſpace of the level covered by the rope?

OF OBLIQUE-ANGLED TRIANGLES.

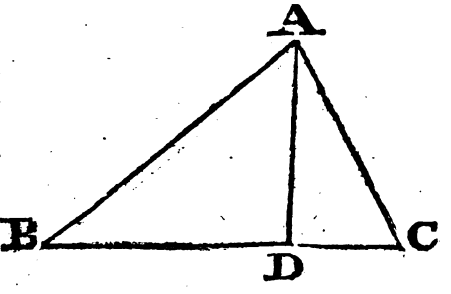
WHEN all the angles and a ſide, of an oblique-angled triangle, are given, to find the other ſides: or, when two ſides and an angle, oppoſite to one of them, are given, to find the other two angles and the third ſide; the parts required may be found by means of the following

THEOREM.

The ſides of a plane triangle are to one another, as the ſines of the angles oppoſite to them.

Let ABC be an oblique-angled triangle, from the angle A let fall a perpendicular AD; then ſuppoſing BA and AC reſpectively radius of the two triangles, it is evident by Caſe 2. of right-angled triangles, that,

BA : AD :: R : S,B.
and, CA : AD :: R : S,C.
Therefore,
BA × S,B = CA × S,C.
Conſequently,
BA : AC :: S,C : S,B.



In like manner, it may be demonſtrated, that any other two ſides are to each other, as the ſines of their oppoſite angles; and on the contrary, the ſines of angles are in the ſame proportion to one another, as the ſides oppoſite to them.

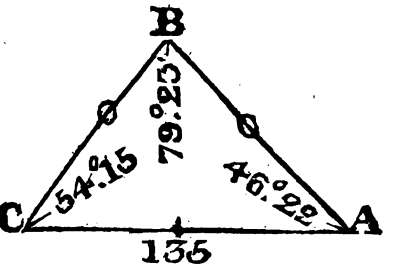
Note. If a ſide be ſought, begin with an angle oppoſite to the given ſide; but if an angle be ſought, begin with a ſide oppoſite to the given angle.

CASE 1. *The angles and one ſide of an oblique-angled triangle, given, to find the other ſides.*

Ex. 1. In the triangle ABC ſuppoſe angle A 46° 22′, angle B 79° 23′, and conſequently the angle C 54° 15′, and the ſide AC 135 feet; required the ſides AB and BC.

Geometrically.

Make the angle C = 54° 15′, taken from a line of chords, take the given ſide AC = 135 from a ſcale of equal parts, which lay from C to A, and make the the angle CAB = 46° 22′, the ſide AB will fall on its proper place; then meaſure AB and BC on the ſame ſcale from which AC was taken.



By calculation to find AB.

As the ſine of B 79° 23′ = 9.9925013

Is to the ſine of C 54° 15′ = 9.9093281

So is the ſide AC 135 = 2.1303338

To the ſide AB 111.47 = 2.0471606

And to find BC,—As, S,B : S,A :: AC : BC = 99.41 feet.

2. In the oblique-angled triangle ABC, let there be given the ſide BC 5304 yards, the angle B 40° 34′, and the angle C 36°; required the ſides AB and AC?

3. Coaſting along the ſhore, I ſaw a cape which bore from me directly Weſt, I ſteered away W. N. W. 60 miles, and then the ſame bore from me S. W. by W.; required the diſtance from each ſtation to the cape?

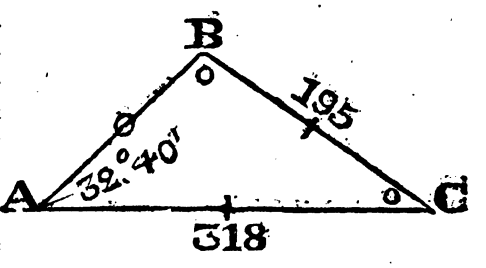
4. In the triangular field ABC, let the side AB be 3045 links; the angle at A 34° 45′, and the angle at B 50° 10′; required the length of the other sides AC and BC?

CASE 2. *In any oblique-angled triangle, two sides and an angle opposite to one of them given, to find the rest.*

Ex. 1. In the oblique-angled triangle ABC, obtuse at B, let the side AC be 318 yards, the side BC 195 yards, and the angle A 32° 40′; required the angles B and C, and the side AB?

Geometrically.

Draw AC = 318, from a scale of equal parts, and at the point A make an angle of 32° 40′, then with 195 equal parts in your compasses, set one foot in C cross AB in B and join AB. Measure the angles B and C on the line of chords, and the side AB on the same scale from which the other sides were taken.



Calculation, to find the angles.

As the side BC 195	= 2.2900346
Is to the side AC 318	= 2.5024271
So is the sine of A 32° 40′	= 9.7321932
To the sine of 61° 40′	= 9.9445857

But B being an obtuse-angle, 61° 40′ is only its supplement; therefore subtract it from 180° there remains 118° 20′ = B, and A 32° 40′ + B 118° 20′ = 151° taken from 180° there remains 29° = angle C.

To find the side AB.

As, sine of A : sine of C :: BC : AB = 175.15 yards.

Note. When the given side opposite to the given angle is greater than the other given side, then the angle opposite to the other given side, or the angle to be first found is always acute, and is that found by the proportion: But when the side opposite to the given angle is less than the other given side, the angle opposite to this other given

ſide may be either acute or obtuſe, and when obtuſe, as in the above example, the ſupplement of the fourth proportional is the angle ſought.

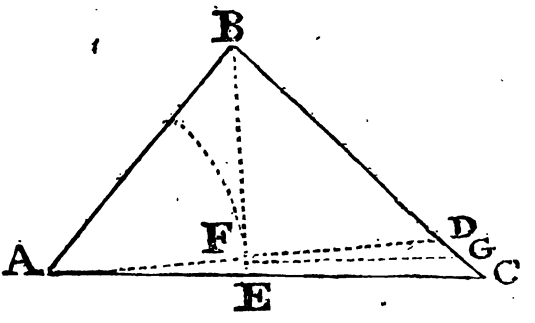
2. In the oblique-angled triangle ABC, obtuſe at B, ſuppoſe the ſide AB 4101 feet, the ſide BC 2900 feet, and the angle A 30°; required the angles B and C and the ſide AC?

3. In the triangular field BCD, let the ſide CD be 485 links, and the ſide DB 543 links, and the angle C oppoſite to the ſide DB 70° 35′; required the angles B and D, with the length of the ſide BC?

4. A headland bore N. W. by W. from a ſhip which ſailed thence N. N. E. 54 miles, and then came to an anchor 63 miles from the ſame headland; required the diſtance of the headland from the firſt place of obſervation, and its bearing from the ſhip at anchor?

THEOREM.

In any plane triangle, as the ſum of any two ſides, is to their difference, ſo is the tangent of half the ſum of their oppoſite angles, to the tangent of half their difference.



In the triangle ABC make BD equal to AB, join AD, biſect the angle B by the line BFE, which will alſo biſect AD, through F draw FG parallel to AC; then ſhall DC be the difference of AB and BC, and DG or GC half the difference; and the angle BDA or BAD half the ſum of the angles BAC and BCA, and the angle DAC half their difference; and making AF radius, FB is the tangent of BAF the half ſum, and FE the tangent of FAE the half difference; therefore as BG : GC :: BF : FE, and doubling the two firſt terms, as CB + BA : CB — BA :: $T\frac{1}{2}$ $\overline{BAC + BCA}$: $T\frac{1}{2}$ $\overline{BAC - BCA}$.

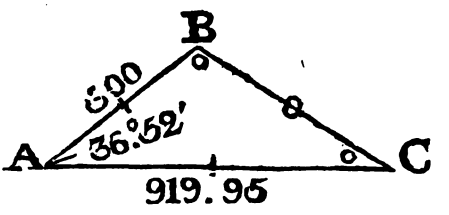
The half difference added to the half ſum of the angles ſought, gives the greater angle, and ſubtracted from it gives the leſs.

CASE 3. *In any plane oblique-angled triangle, two ſides and the contained angle given, to find the other two angles, and the third ſide.*

Ex. 1. In the triangle ABC, ſuppoſe the ſide AC 919.95, the ſide AB 500 feet, and the contained angle A 36° 52′; required the angles B and C and the ſide BC?

Geometrically.

Make the angle BAC = 36° 52′, take AB = 500 from a ſcale of equal parts, which ſet from A to B; and for AC take 920 equal parts, nearly 919.95, which lay from A to C, then join BC and meaſure it upon the ſame ſcale; and meaſure the angles B and C on the line of chords.



By Calculation, to find the angles.

AC = 919.95		Three angles	= 180° ′
AB = 500.		Angle A	= 36 52
Sum = 1419.95		Sum of B and C	= 143 8
Diff. = 419.95		Half ſum	= 71 34

As the ſum of AC + AB 1419.95 = 3.1522730

Is to their difference, AC — AB 419.95 = 2.6231976

So is the tangent of ½ B + C 71° 34′ = 10.4771621

To the tangent of ½ B — C 41° 35′ = 9.9480867

The ſum is angle B = 113° 9′
The diff. is angle C = 29° 59′, Then to find BC.
As the S,C : S,A :: AB : BC = 600.26 feet.

2. In the obtuſe-angled triangle ABC, let the ſide AB be 290 yards, and the ſide BC 410.1 yards, and the contained angle B 105°; required the angles A and C and the ſide AC?

3. Suppoſe BCD a triangular field; the ſide BC meaſures 10 chains 30 links, the ſide CD 12 chains 60 links, and the contained angle C, meaſured with an angular inſtrument, is found to be 56° 30′; required the other angles B and D, and the ſide BD?

4. There are three cities A, B, and C, in a triangular ſituation to each other, A lies $360\frac{1}{4}$ miles due weſt from B, and C lies $230\frac{1}{4}$ miles S. W. by W. from B; what is the diſtance between B and C, and what their bearings to one another?

THEOREM.

In any plane triangle, the rectangle contained by half the ſum of the ſides, and the exceſs of that half ſum above the ſide oppoſite to the angle ſought, is to the rectangle contained by the differences between the half ſum of the ſides, and the two ſides which contain the angle ſought; as the ſquare of radius is to the ſquare of the tangent of half the angle ſought. For the demonſtration of this ſee the Trigon. annexed to Simſon's Eucl. Prop. 6. Hence we have the following

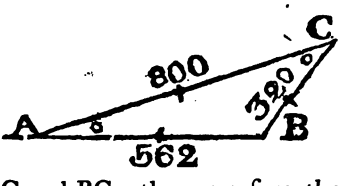
Rule. Add the three ſides together, and take half the ſum, and the differences betwixt the half-ſum and each ſide; then add the complements of the logarithms of the half-ſum, and of the difference between the half-ſum and the ſide oppoſite to the angle ſought, to the logarithms of the differences of the half-ſum and the other ſides; half the ſum of theſe will be the tangent of half the angle required.

CASE 4. *The three ſides of any plane triangle given, to find any or all of the angles.*

Ex. 1. In the plane triangle ABC, ſuppoſe the ſide AB 562 feet, AC 800 feet, and BC 320 feet, given, to find the angle B.

Geometrically.

Draw the indefinite line AB, and upon it lay 562 taken from a ſcale of equal parts, then take AC = 800, ſet one foot of the compaſſes in A with the other deſcribe an arch, and with BC = 320, with one foot in B croſs the former arch in C; join AC and BC; then meaſure the angles on the line of chords.



AC = 800	Half = 841	*comp. log.* =	7.0752040
AB = 562	H — AC = 41	*comp. log.* =	8.3872161
BC = 320	H — AB = 279	=	2.4456042
Sum = 1682	H — BC = 521	=	2.7168377
			2) 20.6248620
½ ſum = 841			

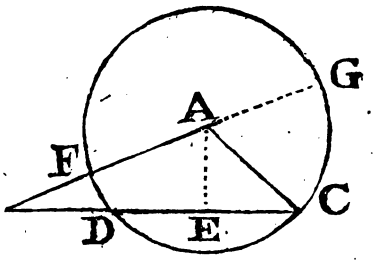
Tangent of 64° 2′ = 10.3124310, whoſe double 128° 4′ is the angle B ſought. In like manner the angle A may be found to be 18° 21′, and the angle C 33° 35′.

This caſe may alſo be reſolved by dividing the given triangle into two right-angled triangles, by means of a perpendicular let fall upon the longeſt ſide, from the angle oppoſite to it.

THEOREM.

To find the ſegments of the baſe.

In any plane triangle, as the baſe, or longeſt ſide, is to the ſum of the other two ſides; ſo is the difference of theſe ſides, to the difference of the ſegments of the baſe, made by a perpendicular upon it from the oppoſite angle.



In the oblique-angled triangle ABC let fall a perpendicular from the vertex A, upon the baſe BC, and about A as a centre, at the diſtance AC, the ſhorteſt ſide, deſcribe a circle, produce BA to G; then is BG equal to the ſum of the ſides BA and AC, and BF is their difference; alſo BE and EC are the ſegments of the baſe, and BD their difference. Now by the properties of the circle, the rectangle CB, BD is equal to the rectangle GB, BF; therefore, as CB : BG : : BF : BD, that is, As the baſe BC : BA + AC : : BA — AC : BE — EC, or BD the difference of the ſegments of the baſe.

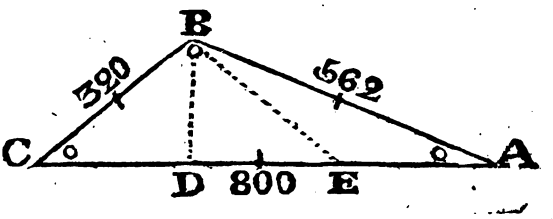
The half of the difference added to half the baſe, gives the greater ſegment, and ſubtracted from it, gives the leſs.

Then in each of the triangles ABE and ACE, the hypothenuſe and a ſide are given, to find the angles, which may be found by Caſe 2. of right-angled triangles; and the two angles BAE and CAE being added together gives the angle BAC.

Note. If the two ſides oppoſite to the baſe be equal, then are the ſegments of the baſe equal alſo; therefore half the baſe is either ſegment; and the angles may be found by Caſe 2. of right-angled triangles. And, if all the ſides be equal all the angles will be equal alſo, each being 60°.

Ex. 1. *Reſumed.* In the triangle ABC let AB 562, AC 800, and BC 320 be given, to find the angles.

AB = 562
BC = 320
Sum = 882
Diff. = 242



As the baſe AC 800 = 2.9030900

Is to the ſides AB + BC 882 = 2.9454686
So is to the diff. AB — BC 242 = 2.3838154

To diff. ſegments AC — AD 266.81 = 2.4261940

The half diff. = 133.405

AC = 800
Its ½ = 400
½ diff. = 133.405
AD = 533.405
CD = 266.6

To find the angle CBD.

As BC 320 = 2.5051500

Is to CD 266.6 = 2.4258601
So is radius = 10.

To the ſine of CBD 56° 25′ = 9.9207101

To find the angle ABD.

As AB 562	= 2.7497363
Is to AD 533.405	= 2.7270571
So is radius	= 10.
To the ſine of ABD 71° 39′	= 9.9773208
Add CBD = 56° 25′	

The whole angle ABC = 128° 4′

The complement of CBD 33° 35′ is the angle C, and the complement of ABD is the angle A = 18° 21′.

2. In the oblique-angled triange ABC, ſuppoſe the ſide AC 105 yards, AB 85 yards, and BC 50 yards, given to find the three angles A, B, and C.

3. Suppoſe A, B, and C, three towns, let A be diſtant from B 760 miles, and from C 370 miles, and B's diſtance from C 530 miles; required their bearings the one from the other?

4. Let there be two ports in the ſame parallel of latitude, whoſe diſtance is 480 leagues, and ſuppoſe a ſhip ſails from the one port 300 leagues between North and Eaſt, and another ſhip from the other port 240 leagues between North and Weſt, where ſhe meets with the firſt ſhip; required the courſe of each?

GEOMETRY.

In the following examples it will be obſerved that ſundry propoſitions in the order, are omitted, *viz.* the 1ſt, 10th, 11th, 12th, *&c.* they are either deſcriptions of inſtruments, as the Geometrical Square, Quadrant, *&c.* or are not ſolved by the help of the following Tables, and therefore lie out of the plan of this publication, which was only to exemplify ſuch of the propoſitions as relate to meaſuring heights and diſtances. That the ſtudent, however, may have an opportunity of conſulting Gregory's Demonſtrations or Figures, his order of the propoſitions exemplified, is preſerved.

Although there are a number of the following examples, as well as of thoſe under the Caſes of Trigonometry, wherein letters are uſed as alluding to figures; yet it was thought unneceſſary to have figures for them, as they may be eaſily ſupplied in the ſolutions.

EXAMPLES

Adapted to the ſeveral propoſitions in Dr. Gregory's Practical Geometry, relating to the meaſuring of heights and diſtances.

PROPOSITION II.

PROB. *To meaſure an acceſſible height, by the help of a geometrical ſquare, the diſtance being known.*

Ex. 1. At the diſtance of 130 feet from the bottom of a tower AB, and on the ſame horizontal plane with it, I direct the ſights of the ſquare to its ſummit A, and obſerve that the plummet cuts 95 equal parts on the ſide adjacent to the ſights, and ſuppoſe the ſquare $5\frac{1}{2}$ feet above the ground; required the height of the tower?

2. Let BC be a horizontal plane, on which ſtands the perpendicular object AB, let the obſerver be placed 196 yards from the bottom of the object, at C, and let the height of his eye be 5 feet; ſuppoſe the plummet cuts 45 equal parts, upon the inclined ſide of the ſquare, or that oppoſite to the ſights; what is the height of the object?

Note. If the plummet cut the oppoſite angle, the diſtance of the object from the place of the obſerver, is the ſame with its height above his eye; therefore, to the diſtance add the height of the obſervers eye, gives the whole height of the object.

PROPOSITION III.

PROB. *The height of a tower, or object given, to find any distance on the horizontal plane, by the geometrical square.*

Ex. 1. Standing upon the top of a tower AB whose height is 120 feet, I place the square so as, through the sights, to observe a house on the plane below, I find the plummit cuts 80¼ equal parts on the side opposite to the sights; required the distance of the house C from the bottom of the tower?

2. From the top of a hill, 210 yards high, I observe a tree at the bottom, whose distance from the centre of the hill, I wish to know, placing the sights of the square towards the tree, the plummet cuts 96¼ equal parts, on the side adjacent to the sights; what is the distance of the tree?

PROPOSITION IV.

PROB. *To measure any distance on land or sea, by the geometrical square.*

Ex. 1 From a station A, upon a horizontal plane, I perceive a tree F, going off, at right angles to AF 350 yards to another station at B, and placing the square so as through the sights to see the former station A, then directing the sights of the index to the tree F, the index cuts 56, on the edge adjacent to the sights of the square; required the distance of the tree from the first station?

2. Suppose a church in the same straight line with AF, but considerably farther off than the tree F, the distance between the stations A and B being 350 yards, as before, but the sights of the index being turned towards the church G cuts 30 equal parts on the side of the square opposite to the sights; the distance of the church from the first station is required?

PROPOSITION V.

PROB. *To measure an accessible height by means of a plane mirror, or bason of water.*

Ex. Let the mirror C be placed 140 feet distant from the bottom of the tower AB, and supposing an observer, whose eye is 5 feet 9 inches from the ground, at D 8¼ feet distant from the mirror, to see the image of the summit of the tower, in the mirror at C; Quere, the height of the tower AB?

PROPOSITION VI.

PROB. *To meaſure an acceſſible height by means of two ſtaffs.*

Ex. Suppoſe a ſtaff DE, 9 feet long be fixed perpendicularly, 2900 yards from the bottom of an object AB, whoſe height is ſought, and another ſtaff FG 5 feet long, 100 feet farther from the object; ſo that the ſummits of all the three be in the ſame ſtraight line; what is the height of the object?

PROPOSITION VII.

PROB. *To meaſure an inacceſſible height by means of two ſtaffs.*

Ex. Let AB be an inacceſſible ſpire, whoſe height is required by the help of two ſtaffs, the one 9 feet, the other $5\frac{1}{2}$ feet long; at the firſt ſtation, the ſtaffs are placed perpendicular, ſo as the ſummit of the ſpire is ſeen over their tops, the diſtance between the ſtaffs is then found to be 8 feet; and at a ſecond ſtation, 120 feet from the ſhorteſt ſtaff in the firſt ſtation, the ſame ſtaff is placed, and the longeſt betwixt it and the object, ſo as the ſummits of both and the ſpire be in the ſame ſtraight line; here the diſtance between the ſtaffs is $14\frac{1}{4}$ feet; required the height of the ſpire?

PROPOSITION VIII.

PROB. *To meaſure the diſtance between any two places, to one of whoſe extremities we have acceſs, by the help of four ſtaffs.*

Ex. Let two of the ſtaffs be placed in a line with the object, ſuppoſe a tree whoſe diſtance from the firſt ſtaff A is ſought, and ſuppoſe their diſtance 150 feet, then let the third ſtaff be placed at any diſtance from the line of the two firſt and perpendicular to it, from the ſtaff A, ſuppoſe 160 feet, at the point H; then going onward in a line with the tree and this ſtaff, until a line would fall perpendicular upon the ſecond ſtaff; here the fourth ſtaff is fixed, and this perpendicular is found to be $175\frac{1}{2}$ feet; how far is the tree diſtant from the ſtaff A?

PROPOSITION IX.

PROB. *To meaſure the diſtance AB, one of whoſe extremities is acceſſible, by means of three ſtaffs only.*

Ex. Suppoſe B an object whoſe diſtance from the ſtation A is ſought: At the ſtaff A, make the line AC perpendicular to AB and ſuppoſe AC 350 links, place the ſecond ſtaff at C; then make CD perpendicular to BC, and let it meet the line BA produced in D, let the meaſure of DA be 85 links; required the diſtance AB?

PROPOSITION XIII.

PROB. *To meaſure an acceſſible height by the geometrical quadrant.*

Ex. 1. At the diſtance of 310 feet from a wall, the angle of elevation is obſerved to be 15° 40′; required the height of the wall?

2. Required the height of a tower, and the length of a ſcaling ladder that will reach from the place of obſervation, 120 yards from the bottom of the tower, to its ſummit ſuppoſing the angle of elevation at the ſame place to be 30° 15′?

3. Required the height of a tower, whoſe angle of elevation, at the diſtance of 230 links, of a Scotch chain, from the bottom is 43° 30′?

PROPOSITION XIV.

PROB. *To meaſure an inacceſſible height and diſtance by the geometrical quadrant.*

Ex. 1. What is the perpendicular height of a hill whoſe angle of elevation near the bottom is 33° 20′ and 125 yards farther off 28° 30′, and what the diſtance of the perpendicular from the firſt ſtation?

2. Required the height of a ſteeple whoſe angle of elevation at the firſt ſtation is 40° 30′, and at the ſecond ſtation 145 yards farther off, is 34° 15′?

3. To find the height of an object on the top of a hill, there are given the elevation of a hill 30°, and the elevation of the object at the ſame ſtation 47° 30′, alſo the elevation of the object at another ſtation, 85 yards diſtant, in a direct line from the former, 28° 45′?

PROPOSITION XV.

PROB. *From the top of a given height, to meaſure any diſtance on the horizontal plane below.*

Ex. 1. Standing on the top of a tower, 136½ feet in height, I obſerve a tree at the diſtance on the plane, a ſtraight line to which makes an angle, with the wall of the tower, of 67° 20′; required the diſtance of the tree from the bottom of the tower?

2. From the battlements of a caſtle, on the ſhore 156 yards above the level of the ſea, a ſhip is obſerved about to open her ports for a ſiege; the angle of depreſſion to the ſhip is found to be 56° 40′; required her diſtance both from the bottom and top of the caſtle?

PROPOSITION XVI.

PROB. *To meaſure the diſtance of two places, one of which is acceſſible, by the graphometer.*

Ex. 1. To find the diſtance AB there is given the angle at A 68° 54′, the angle at C, the ſecond ſtation, 86° 15′, and the diſtance between the two ſtations AC 520 feet.

2. Walking along the ſhore I obſerved an iſland at ſome diſtance which I wiſh to aſcertain, I find the angle it makes with a ſtraight line along the ſhore to be 95° 20′, then meaſuring 650 links along this line, I obſerve the iſland bears from this ſecond ſtation at an angle of 75° 40′; required its diſtance from the firſt ſtation?

3. From a ſhip, a headland was ſeen bearing N. E. by N. ſhe then ſtood away N. W. 23 miles, and the ſame headland was obſerved to bear from her E. by N.; required the diſtance of the headland from the ſhip at each ſtation?

PROPOSITION XVII.

PROB. *To meaſure by the graphometer, the diſtance of two places, neither of which is acceſſible.*

Ex. 1. To find the diſtance between two inacceſſible objects A and B, at the two ſtations C and D, 400 yards diſtant, the angles ACD 100° 15′, and ACB 39° 40′, at the one ſtation, and the angles BDC 118° 30′, and BDA 43° at the other ſtation are given.

2. Required the diſtance between two pariſh churches on the farther ſide of a river, ſuppoſing the ſtraight line between them to ſubtend angles at the two ſtations 60° 20′ and 67°, the diſtance between theſe ſtations 430 yards, and the other angles at the ſtations 42° and 45° 15′ reſpectively?

3. The ſhip Speedwell ſailing along the coaſt, the maſter obſerved a cape which bore from him N. W. by N, and another headland bearing N. N. E.; then ſtanding away E. N. E. ½ E. 21 miles, he found the firſt bore from him W. N. W., and the ſecond N. by W. ½ W.; required the diſtance of the cape from the headland?

PROPOSITION XVIII.

PROB. *By the graphometer and quadrant, to meaſure an inacceſſible height, placed ſo on a ſteep, that one can neither go near it, nor recede from it, in a horizontal plane.*

Ex. 1. To find the height of an object on the top of a hill, there are given the elevation of the hill 26° 30′, the elevation of the object at the ſame ſtation 47°, and the elevation of a ſecond ſtation in the ſame vertical plane, but farther from the object 13° 20′; alſo the diſtance between the ſtations 130 yards and the angle at the ſecond ſtation, contained by a ſtraight line to the firſt, and another to the ſummit of the object 38° 40′.

2. Two ſtations of the diſtance of 160 yards, on the ſide of a hill whence the angles of depreſſion of the bottom of a tower on the oppoſite hill are 68° 30′ and 82°; alſo at the upper ſtation the depreſſion of the ſummit of the tower is 17° 20′, and its elevation at the under ſtation 6° are given, and ſuppoſe all the angles in the ſame vertical plane; *Quere*, the height of the tower?

MISCELLANEOUS PROBLEMS.

PROB. 1. *To find the extent of an obſerver's view in every direction, or the ſemidiameter of his ſenſible horizon, at any height above an extended plane.*

Ex. Suppoſe a man on board of a ſhip in the open ſea, whoſe eye is 18 feet above the level of the water, how far will he ſee around him in every direction, ſuppoſing the diameter of the globe to be 14016640 yards?

PROB. 2. *To find the height of an object from the top of another object in the ſame plane with it.*

Ex. From the ſummit of a tower 375 feet in height the angle of depreſſion of the top of a ſteeple on the ſame horizontal plane, was found to be 43° 30′, and of the bottom 54° 20′; required the height of the ſteeple?

PROB. 3. *From the top of a hill to meaſure its height by means of the known height of an object on the plane below.*

Ex. From the ſummit of a hill, the angles of depreſſion of the top and bottom of a tower, on the plane below, whoſe height is 136 feet, were obſerved to be 28° 20′ and 34°, reſpectively; the height of the hill is required?

PROB. 4. *To find the diſtance of any inacceſſible object from a given ſtation, and its height above the level of that ſtation, by the help of another ſtation, not in the ſame vertical plane with the former.*

Ex. Required the height of a ſpire, ſuppoſing its elevation at the firſt ſtation to be 15° 40′, and the horizontal angle between the ſpire and the ſecond ſtation 76°, and the horizontal angle at the ſecond ſtation 63° 40′; alſo the diſtance between the two ſtations 550 links of a Scotch chain?

PROB. 5. *To find the diſtance between two inacceſſible objects from two ſtations in the ſame vertical plane with each other.*

Ex. From the firſt of two ſtations, in the ſame vertical plane, and 120 yards diſtant from each other, a caſtle on the left, is obſerved to bear from the plane, at an angle of 24° 30′, and a tower on the right of the ſame plane, at an angle of 26°; and advancing to the ſecond ſtation, the one is found to bear at an angle of 30°, and the other at 38° 40′; required the diſtance of the tower from the caſtle?

PROB. 6. *To find the diſtance at which an object of a given height may be viewed, under any given angle.*

Ex. On the top of a monument whoſe height is 80 feet, ſtands a ſtatue 12 feet high; at what diſtance from the monument may the ſtatue be viewed under an angle of 3° 20′, and what is the greateſt angle under which it can be viewed?

PROB. 7. *To find the height of an inacceſſible object from three ſtations, no two of which are in the ſame ſtraight line with the third and the bottom of the object.*

Ex. The elevation of a tower at one ſtation is 20° 45′, and at another 60 yards from the former, but not in the ſame ſtraight line with it and the foot of the tower, 19° 40′; and at a third ſtation 30 yards diſtant from each of the former 21° 48′; required the height of the tower?

PROB. 8. *To find the height of an inacceſſible object by two angles of altitude taken in the ſame vertical plane, and ſolved by one proportion.*

Ex. Let the diſtance of two ſtations from which an object is viewed be 360 feet, the angle at one ſtation 30° 25′, and at the other 45° 30′; required the height of the object?

The proportion will be, As the difference of the natural co-tangents of the given angles, is to the diſtance of the two ſtations; ſo is radius to the height of the object.

PROB. 9. *The distances of three objects, not in a straight line, and the angles at a fourth point within the same, given to find the distance of each object from that point.*

Ex. Suppose the distances between three trees to be respectively 127, 346, and 209 yards, and the angles at a point within the same 108° 40′, 140°, and 111° 20′ respectively; required the distance from this point to each of the trees?

PROB. 10. *To find the distance of a point from three objects, whose distances are known, but the point without the triangle formed by the objects.*

Ex. Let A, B, and C be three towns whose distance from the spire E is sought, supposing A 35 miles distant from B, and 58½ miles from C, and B 28½ miles from C; also the angles at the spire AEB 51° 20′, and DEC 34° 56′; what is the distance between the spire and each of the three towns?

To find the Area of a Triangle.

Logarithms may also be used to shorten some of the most tedious calculations in land surveying; therefore it will not be improper to subjoin a method for finding by logarithms, the area of a triangle, having three sides given, which by whole numbers, is a very tedious operation.

Rule. From the half sum of the three sides subtract each side severally, and find the logarithms corresponding to the half sum and the three differences, which add all together, and take half their sum, the natural number answering to this, is the area of the triangle.

Ex. Required the area of a triangular field, whose three sides are 136, 296, and 247 yards?

2) 679 = 136 + 296 + 247.

		339.5 its log.	= 2.5308398
339.5	— 136 =	203.5	= 2.3085644
	— 296 =	43.5	= 1.6384893
	— 247 =	92.5	= 1.9661417
			2) 8.4440352

Answer, 16673.146 square yards = 4.2220176

2. What is the area of a triangle, whoſe three ſides are 4900, 5025 and 2569 links of a Scotch ſurveying chain?

Anſwer, 6149799 ſquare links, or 61 Acres, 1 Rood, 39$\frac{1}{2}$ Falls.

3. How many acres, &c. are contained in a triangle whoſe three ſides are reſpectively 380, 420, 765 yards?

Anſwer, 44699.486 ſquare yards, or 7 A. 3 R. 1$\frac{1}{2}$ F.

To find the area of a ſquare field by knowing the diſtance of three of its corners from an object without it.

Ex. A gentleman wanted to know the content of a field, but had forgotten the dimenſions, only he remembered that the diſtance between a large oak which grew without the field, and three of its corners in a ſucceſſive order were 156, 116, 156 yards; required the content of the field?

A TABLE, ſhowing the number of Feet, Inches, and Decimals of an Inch, which are to be ſubtracted from the apparent, to find the true level for the ſeveral diſtances therein mentioned.

Miles.	F.	Inches.	Miles.	F.	Inches.	Miles.	F.	Inches.
$\frac{1}{4}$	0	0.49	9	53	8.4	20	265	2.3
$\frac{1}{2}$	0	2.	10	66	3.48	21	292	4.5
$\frac{3}{4}$	0	4.47	11	80	2.56	22	320	10.6
1	0	7.95	12	95	5.6	23	350	8.6
2	2	7.8	13	112	0.5	24	381	10.5
3	5	11.6	14	129	11.33	25	414	4.37
4	10	7.3	15	149	2.	26	448	2.
5	16	6.9	16	169	8.68	27	483	3.77
6	23	10.57	17	191	7.2	28	519	9.3
7	32	5.66	18	214	9.6	29	557	6.8
8	42	5.16	19	239	4.	30	596	8.2

A

TABLE,

CONTAINING THE

LOGARITHMS OF ALL NUMBERS,

From an Unit to 10,000.

Numbers from 1 to 100, and their Logarithms with Indices.

N.	Log.	N.	Log.	N.	Log.	N.	Log.
1	0.0000000	26	1.4149733	51	1.7075702	76	1.8808136
2	0.3010300	27	1.4313638	52	1.7160033	77	1.8864907
3	0.4771213	28	1.4471580	53	1.7242759	78	1.8920946
4	0.6020600	29	1.4623980	54	1.7323938	79	1.8976271
5	0.6989700	30	1.4771213	55	1.7403627	80	1.9030900
6	0.7781513	31	1.4913617	56	1.7481880	81	1.9084850
7	0.8450980	32	1.5051500	57	1.7558749	82	1.9138139
8	0.9030900	33	1.5185139	58	1.7634280	83	1.9190781
9	0.9542425	34	1.5314789	59	1.7708520	84	1.9242793
10	1.0000000	35	1.5440680	60	1.7781513	85	1.9294189
11	1.0413927	36	1.5563025	61	1.7853298	86	1.9344985
12	1.0791812	37	1.5682017	62	1.7923917	87	1.9395193
13	1.1139434	38	1.5797836	63	1.7993405	88	1.9444827
14	1.1461280	39	1.5910646	64	1.8061800	89	1.9493900
15	1.1760913	40	1.6020600	65	1.8129134	90	1.9542425
16	1.2041200	41	1.6127839	66	1.8195439	91	1.9590414
17	1.2304489	42	1.6232493	67	1.8260748	92	1.9637878
18	1.2552725	43	1.6334685	68	1.8325089	93	1.9684829
19	1.2787536	44	1.6434527	69	1.8388491	94	1.9731279
20	1.3010300	45	1.6532125	70	1.8450980	95	1.9777236
21	1.3222193	46	1.6627578	71	1.8512583	96	1.9822712
22	1.3424227	47	1.6720979	72	1.8573325	97	1.9867717
23	1.3617278	48	1.6812412	73	1.8633229	98	1.9912261
24	1.3802112	49	1.6901961	74	1.8692317	99	1.9956352
25	1.3979400	50	1.6989700	75	1.8750613	100	2.0000000
N.	Log.	N.	Log.	N.	Log.	N.	Log.

N. B. In the following part of the Table the indices are omitted, as they are eaſily ſupplied, being always, each of them, an unit leſs than the number of figures in the correſponding natural number.

A Table of Logarithms from 1 to 10,000.

N.	0	1	2	3	4	5	6	7	8	9
100	0000000	0004341	0008677	0013009	0017337	0021661	0025980	0030295	0034605	0038912
101	0043214	0047512	0051805	0056094	0060380	0064660	0068937	0073210	0077478	0081742
102	0086002	0090257	0094509	0098756	0103000	0107239	0111474	0115704	0119931	0124154
103	0128372	0132587	0136797	0141003	0145205	0149403	0153598	0157788	0161974	0166155
104	0170333	0174507	0178677	0182843	0187005	0191163	0195317	0199467	0203613	0207755
105	0211893	0216027	0220157	0224284	0228406	0232525	0236639	0240750	0244857	0248960
106	0253059	0257154	0261245	0265333	0269416	0273496	0277572	0281644	0285713	0289777
107	0293838	0297895	0301948	0305997	0310043	0314085	0318123	0322157	0326188	0330214
108	0334238	0338257	0342273	0346285	0350293	0354297	0358298	0362295	0366289	0370279
109	0374265	0378248	0382226	0386202	0390173	0394141	0398106	0402066	0406023	0409977
110	0413927	0417873	0421816	0425755	0429691	0433623	0437551	0441476	0445398	0449315
111	0453230	0457141	0461048	0464952	0468852	0472749	0476642	0480532	0484418	0488301
112	0492180	0496056	0499929	0503798	0507663	0511525	0515384	0519239	0523091	0526939
113	0530784	0534626	0538464	0542299	0546131	0549959	0553783	0557605	0561423	0565237
114	0569049	0572856	0576661	0580462	0584260	0588055	0591846	0595634	0599419	0603200
115	0606978	0610753	0614525	0618293	0622058	0625820	0629578	0633334	0637086	0640834
116	0644580	0648322	0652061	0655797	0659530	0663259	0666986	0670709	0674428	0678145
117	0681859	0685569	0689276	0692980	0696681	0700379	0704073	0707765	0711453	0715138
118	0718820	0722499	0726175	0729847	0733517	0737184	0740847	0744507	0748164	0751819
119	0755470	0759118	0762763	0766404	0770043	0773679	0777312	0780942	0784568	0788192
120	0791812	0795430	0799045	0802656	0806265	0809870	0813473	0817073	0820669	0824263
121	0827854	0831441	0835026	0838608	0842187	0845763	0849336	0852906	0856473	0860037
122	0863598	0867157	0870712	0874265	0877814	0881361	0884905	0888446	0891984	0895519
123	0899051	0902581	0906107	0909631	0913152	0916670	0920185	0923697	0927206	0930713
124	0934217	0937718	0941216	0944711	0948204	0951694	0955180	0958665	0962146	0965624
125	0969100	0972573	0976043	0979511	0982975	0986437	0989896	0993353	0996806	1000257
126	1003705	1007151	1010594	1014034	1017471	1020905	1024337	1027766	1031193	1034616
127	1038037	1041456	1044871	1048284	1051694	1055102	1058507	1061909	1065309	1068705
128	1072100	1075491	1078880	1082267	1085650	1089031	1092410	1095785	1099159	1102529
129	1105897	1109262	1112625	1115985	1119343	1122698	1126050	1129400	1132747	1136092
130	1139434	1142773	1146110	1149444	1152776	1156105	1159432	1162756	1166077	1169396
131	1172713	1176027	1179338	1182647	1185954	1189258	1192559	1195858	1199154	1202448
132	1205739	1209028	1212315	1215598	1218880	1222159	1225435	1228709	1231981	1235250
133	1238516	1241781	1245042	1248301	1251558	1254813	1258065	1261314	1264561	1267806
134	1271048	1274288	1277525	1280760	1283993	1287223	1290451	1293676	1296899	1300119
135	1303338	1306553	1309767	1312978	1316187	1319393	1322597	1325798	1328998	1332195
136	1335389	1338581	1341771	1344959	1348144	1351327	1354507	1357685	1360861	1364034
137	1367206	1370375	1373541	1376705	1379867	1383027	1386184	1389339	1392492	1395643
138	1398791	1401937	1405080	1408222	1411361	1414498	1417632	1420765	1423895	1427022
139	1430148	1433271	1436392	1439511	1442628	1445742	1448854	1451964	1455072	1458177
140	1461280	1464381	1467480	1470577	1473671	1476763	1479853	1482941	1486027	1489110
141	1492191	1495270	1498347	1501422	1504494	1507564	1510633	1513699	1516762	1519824
142	1522883	1525941	1528996	1532049	1535100	1538149	1541195	1544240	1547282	1550322
143	1553360	1556396	1559430	1562462	1565492	1568519	1571544	1574568	1577589	1580608
144	1583625	1586640	1589653	1592663	1595672	1598678	1601683	1604685	1607686	1610684
145	1613680	1616674	1619666	1622656	1625644	1628630	1631614	1634596	1637575	1640553
146	1643529	1646502	1649474	1652443	1655411	1658376	1661340	1664301	1667261	1670218
147	1673173	1676127	1679078	1682027	1684975	1687920	1690864	1693805	1696744	1699682
148	1702617	1705551	1708482	1711412	1714339	1717265	1720188	1723110	1726029	1728947
149	1731863	1734776	1737688	1740598	1743506	1746412	1749316	1752218	1755118	1758016
150	1760913	1763807	1766699	1769590	1772478	1775365	1778250	1781133	1784013	1786892
151	1789769	1792645	1795518	1798389	1801259	1804126	1806992	1809856	1812718	1815578
152	1818436	1821292	1824147	1826999	1829850	1832698	1835545	1838390	1841234	1844075
153	1846914	1849752	1852588	1855422	1858254	1861084	1863912	1866739	1869563	1872386
154	1875207	1878026	1880844	1883659	1886473	1889285	1892095	1894903	1897710	1900514
155	1903317	1906118	1908917	1911715	1914510	1917304	1920096	1922886	1925675	1928461
156	1931246	1934029	1936810	1939590	1942367	1945143	1947918	1950690	1953461	1956229
157	1958997	1961762	1964525	1967287	1970047	1972806	1975562	1978317	1981070	1983821
158	1986571	1989319	1992065	1994809	1997552	2000293	2003032	2005769	2008505	2011239
159	2013971	2016702	2019431	2022158	2024883	2027607	2030329	2033049	2035768	2038485

N.	0	1	2	3	4	5	6	7	8	9

A Table of Logarithms from 1 to 10,000.

N.	0	1	2	3	4	5	6	7	8	9
160	2041200	2043913	2046625	2049335	2052044	2054750	2057455	2060159	2062860	2065560
161	2068259	2070955	2073650	2076344	2079035	2081725	2084414	2087100	2089785	2092468
162	2095150	2097830	2100508	2103185	2105860	2108534	2111205	2113876	2116544	2119211
163	2121876	2124540	2127202	2129862	2132521	2135178	2137833	2140487	2143139	2145790
164	2148438	2151086	2153732	2156376	2159018	2161659	2164298	2166936	2169572	2172207
165	2174839	2177471	2180100	2182729	2185355	2187980	2190603	2193225	2195845	2198464
166	2201081	2203696	2206310	2208922	2211533	2214142	2216750	2219356	2221960	2224563
167	2227165	2229764	2232363	2234959	2237555	2240148	2242740	2245331	2247920	2250507
168	2253093	2255677	2258260	2260841	2263421	2265999	2268576	2271151	2273724	2276296
169	2278867	2281436	2284004	2286570	2289134	2291697	2294258	2296818	2299377	2301934
170	2304489	2307043	2309596	2312146	2314696	2317244	2319790	2322335	2324879	2327421
171	2329961	2332500	2335038	2337574	2340108	2342641	2345173	2347703	2350232	2352759
172	2355284	2357809	2360331	2362853	2365373	2367891	2370408	2372923	2375437	2377950
173	2380461	2382971	2385479	2387986	2390491	2392995	2395497	2397998	2400498	2402996
174	2405492	2407988	2410481	2412974	2415465	2417954	2420442	2422929	2425414	2427898
175	2430380	2432861	2435341	2437819	2440296	2442771	2445245	2447718	2450189	2452658
176	2455127	2457594	2460059	2462523	2464986	2467447	2469907	2472365	2474823	2477278
177	2479733	2482186	2484637	2487087	2489536	2491984	2494430	2496874	2499318	2501759
178	2504200	2506639	2509077	2511513	2513949	2516382	2518815	2521246	2523675	2526103
179	2528530	2530956	2533380	2535803	2538224	2540645	2543063	2545481	2547897	2550312
180	2552725	2555137	2557548	2559957	2562365	2564772	2567177	2569582	2571984	2574386
181	2576786	2579185	2581582	2583978	2586373	2588766	2591158	2593549	2595939	2598327
182	2600714	2603099	2605484	2607867	2610248	2612629	2615008	2617385	2619762	2622137
183	2624511	2626883	2629255	2631625	2633993	2636361	2638727	2641092	2643455	2645817
184	2648178	2650538	2652896	2655253	2657609	2659964	2662317	2664669	2667020	2669369
185	2671717	2674064	2676410	2678754	2681097	2683439	2685780	2688119	2690457	2692794
186	2695129	2697464	2699797	2702129	2704459	2706788	2709116	2711443	2713769	2716093
187	2718416	2720738	2723058	2725378	2727696	2730013	2732328	2734643	2736956	2739268
188	2741578	2743888	2746196	2748503	2750809	2753114	2755417	2757719	2760020	2762320
189	2764618	2766915	2769211	2771506	2773800	2776092	2778383	2780673	2782962	2785250
190	2787536	2789821	2792105	2794388	2796669	2798950	2801229	2803507	2805784	2808059
191	2810334	2812607	2814879	2817150	2819419	2821688	2823955	2826221	2828486	2830750
192	2833012	2835274	2837534	2839793	2842051	2844307	2846563	2848817	2851070	2853322
193	2855573	2857823	2860071	2862319	2864565	2866810	2869054	2871296	2873538	2875778
194	2878017	2880255	2882492	2884728	2886963	2889196	2891428	2893660	2895890	2898118
195	2900346	2902573	2904798	2907022	2909246	2911468	2913689	2915908	2918127	2920344
196	2922561	2924776	2926990	2929203	2931415	2933626	2935835	2938044	2940251	2942457
197	2944662	2946866	2949069	2951271	2953471	2955671	2957869	2960067	2962263	2964458
198	2966652	2968845	2971037	2973227	2975417	2977605	2979792	2981979	2984164	2986348
199	2988531	2990713	2992893	2995073	2997252	2999429	3001605	3003781	3005955	3008128
200	3010300	3012471	3014641	3016809	3018977	3021144	3023309	3025474	3027637	3029799
201	3031961	3034121	3036280	3038438	3040595	3042751	3044905	3047059	3049212	3051363
202	3053514	3055663	3057812	3059959	3062105	3064250	3066394	3068537	3070680	3072820
203	3074960	3077099	3079237	3081374	3083509	3085644	3087778	3089910	3092042	3094172
204	3096302	3098430	3100557	3102684	3104809	3106933	3109056	3111178	3113300	3115420
205	3117539	3119657	3121774	3123889	3126004	3128118	3130231	3132343	3134454	3136563
206	3138672	3140780	3142887	3144992	3147097	3149201	3151303	3153405	3155505	3157605
207	3159703	3161801	3163898	3165993	3168088	3170181	3172273	3174365	3176455	3178545
208	3180633	3182721	3184807	3186893	3188977	3191061	3193143	3195224	3197305	3199384
209	3201463	3203540	3205617	3207692	3209767	3211840	3213913	3215984	3218055	3220124
210	3222193	3224261	3226327	3228393	3230457	3232521	3234584	3236645	3238706	3240766
211	3242825	3244882	3246939	3248995	3251050	3253104	3255157	3257209	3259260	3261310
212	3263359	3265407	3267454	3269500	3271545	3273589	3275633	3277675	3279716	3281757
213	3283796	3285834	3287872	3289909	3291944	3293979	3296012	3298045	3300077	3302108
214	3304138	3306167	3308195	3310222	3312248	3314273	3316297	3318320	3320343	3322364
215	3324385	3326404	3328423	3330440	3332457	3334473	3336488	3338501	3340514	3342526
216	3344538	3346548	3348557	3350565	3352573	3354579	3356585	3358589	3360593	3362596
217	3364597	3366598	3368598	3370597	3372595	3374593	3376589	3378584	3380579	3382572
218	3384565	3386557	3388547	3390537	3392526	3394514	3396502	3398488	3400473	3402458
219	3404441	3406424	3408405	3410386	3412366	3414345	3416323	3418301	3420277	3422252
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221	3443923	3445887	3447851	3449814	3451776	3453737	3455698	3457657	3459615	3461573
222	3463530	3465486	3467441	3469395	3471348	3473300	3475252	3477202	3479152	3481101
223	3483049	3484996	3486942	3488887	3490832	3492773	3494718	3496660	3498601	3500541
224	3502480	3504419	3506356	3508293	3510229	3512163	3514098	3516031	3517963	3519895
225	3521825	3523755	3525684	3527612	3529539	3531465	3533391	3535316	3537239	3539162
226	3541084	3543006	3544926	3546846	3548764	3550682	3552599	3554515	3556431	3558345
227	3560259	3562171	3564083	3565994	3567905	3569814	3571723	3573630	3575537	3577443
228	3579348	3581253	3583156	3585059	3586961	3588862	3590762	3592662	3594560	3596458
229	3598355	3600251	3602146	3604041	3605934	3607827	3609719	3611610	3613500	3615390
230	3617278	3619166	3621053	3622939	3624825	3626709	3628593	3630476	3632358	3634239
231	3636120	3637999	3639878	3641756	3643634	3645510	3647386	3649260	3651134	3653007
232	3654880	3656751	3658622	3660492	3662361	3664230	3666097	3667964	3669830	3671695
233	3673559	3675423	3677285	3679147	3681009	3682869	3684728	3686587	3688445	3690302
234	3692159	3694014	3695869	3697723	3699576	3701428	3703280	3705131	3706981	3708830
235	3710679	3712526	3714373	3716219	3718065	3719909	3721753	3723596	3725438	3727279
236	3729120	3730960	3732799	3734637	3736475	3738311	3740147	3741983	3743817	3745651
237	3747483	3749316	3751147	3752977	3754807	3756636	3758464	3760292	3762119	3763944
238	3765770	3767594	3769418	3771240	3773063	3774884	3776704	3778524	3780343	3782161
239	3783979	3785796	3787612	3789427	3791241	3793055	3794868	3796680	3798492	3800302
240	3802112	3803922	3805730	3807538	3809345	3811151	3812956	3814761	3816565	3818368
241	3820170	3821972	3823773	3825573	3827375	3829171	3830969	3832767	3834563	3836359
242	3838154	3839948	3841741	3843534	3845326	3847117	3848908	3850698	3852487	3854275
243	3856063	3857850	3859636	3861421	3863206	3864990	3866773	3868555	3870337	3872118
244	3873898	3875678	3877457	3879235	3881012	3882789	3884565	3886340	3888114	3889888
245	3891661	3893433	3895205	3896975	3898746	3900515	3902284	3904052	3905819	3907585
246	3909351	3911116	3912880	3914644	3916407	3918169	3919931	3921691	3923452	3925211
247	3926970	3928727	3930485	3932241	3933997	3935752	3937506	3939260	3941013	3942765
248	3944517	3946268	3948018	3949767	3951516	3953264	3955011	3956758	3958504	3960249
249	3961993	3963737	3965480	3967223	3968964	3970706	3972446	3974185	3975924	3977663
250	3979400	3981137	3982873	3984608	3986343	3988077	3989811	3991543	3993275	3995007
251	3996737	3998467	4000196	4001925	4003653	4005380	4007106	4008832	4010557	4012282
252	4014005	4015728	4017451	4019173	4020894	4022614	4024333	4026052	4027771	4029488
253	4031205	4032921	4034637	4036352	4038066	4039780	4041492	4043205	4044916	4046627
254	4048337	4050047	4051755	4053464	4055171	4056878	4058584	4060289	4061994	4063698
255	4065402	4067105	4068807	4070508	4072209	4073909	4075608	4077307	4079005	4080703
256	4082400	4084096	4085791	4087486	4089180	4090874	4092567	4094259	4095950	4097641
257	4099331	4101021	4102710	4104398	4106085	4107772	4109459	4111144	4112829	4114513
258	4116197	4117880	4119562	4121244	4122925	4124605	4126285	4127964	4129643	4131321
259	4132998	4134674	4136350	4138025	4139700	4141374	4143047	4144719	4146391	4148063
260	4149733	4151404	4153073	4154742	4156410	4158077	4159744	4161410	4163076	4164741
261	4166405	4168069	4169732	4171394	4173056	4174717	4176377	4178037	4179696	4181355
262	4183013	4184670	4186327	4187983	4189638	4191293	4192947	4194601	4196254	4197906
263	4199557	4201208	4202859	4204509	4206158	4207806	4209454	4211101	4212748	4214394
264	4216039	4217684	4219328	4220972	4222615	4224257	4225898	4227539	4229180	4230820
265	4232459	4234097	4235735	4237372	4239009	4240645	4242281	4243916	4245550	4247183
266	4248816	4250449	4252081	4253712	4255342	4256972	4258601	4260230	4261858	4263486
267	4265113	4266739	4268365	4269990	4271614	4273238	4274861	4276484	4278106	4279727
268	4281348	4282968	4284588	4286207	4287825	4289443	4291060	4292677	4294293	4295908
269	4297523	4299137	4300751	4302364	4303976	4305588	4307199	4308809	4310419	4312029
270	4313638	4315246	4316853	4318460	4320067	4321673	4323278	4324883	4326487	4328090
271	4329693	4331295	4332897	4334498	4336098	4337698	4339298	4340896	4342495	4344092
272	4345689	4347285	4348881	4350476	4352071	4353665	4355259	4356851	4358444	4360035
273	4361626	4363217	4364807	4366396	4367985	4369573	4371161	4372748	4374334	4375920
274	4377506	4379090	4380675	4382258	4383841	4385423	4387005	4388587	4390167	4391747
275	4393327	4394906	4396484	4398062	4399639	4401216	4402792	4404368	4405943	4407517
276	4409091	4410664	4412237	4413809	4415380	4416951	4418522	4420092	4421661	4423230
277	4424798	4426365	4427932	4429499	4431065	4432630	4434195	4435759	4437322	4438885
278	4440448	4442010	4443571	4445132	4446692	4448252	4449811	4451370	4452928	4454485
279	4456042	4457598	4459154	4460709	4462264	4463818	4465372	4466925	4468477	4470029

| N. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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1517864	4519399	4520932	4522466	4523998	4525531	4527062	4528593	4530124	4531654
1533183	4534712	4536241	4537769	4539296	4540823	4542349	4543875	4545400	4546924
1548449	4549972	4551495	4553018	4554540	4556061	4557582	4559102	4560622	4562142
1563662	4565179	4566696	4568213	4569730	4571246	4572762	4574277	4575791	4577305
1578819	4580332	4581844	4583356	4584868	4586378	4587889	4589399	4590908	4592417
1593925	4595433	4596940	4598446	4599953	4601458	4602963	4604468	4605972	4607475
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1623980	4625477	4626974	4628470	4629966	4631461	4632956	4634450	4635944	4637437
1638930	4640422	4641914	4643405	4644895	4646386	4647875	4649364	4650853	4652341
1653829	4655316	4656802	4658288	4659774	4661259	4662743	4664227	4665711	4667194
1668676	4670158	4671640	4673121	4674601	4676081	4677561	4679039	4680518	4681996
1683473	4684950	4686427	4687903	4689378	4690853	4692327	4693801	4695275	4696748
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1712917	4714384	4715851	4717317	4718782	4720247	4721711	4723175	4724639	4726102
1727564	4729027	4730488	4731949	4733410	4734870	4736329	4737788	4739247	4740705
1742163	4743620	4745076	4746533	4747988	4749443	4750898	4752352	4753806	4755259
1756712	4758164	4759616	4761067	4762518	4763968	4765418	4766867	4768316	4769765
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1814426	4815859	4817292	4818724	4820156	4821587	4823018	4824448	4825878	4827307
1828736	4830164	4831592	4833020	4834446	4835873	4837299	4838725	4840150	4841574
1842998	4844422	4845845	4847268	4848690	4850112	4851533	4852954	4854375	4855795
1857214	4858633	4860052	4861470	4862888	4864305	4865722	4867138	4868554	4869969
1871384	4872798	4874212	4875626	4877039	4878451	4879863	4881275	4882686	4884097
1885507	4886917	4888326	4889735	4891144	4892552	4893959	4895366	4896773	4898179
1899585	4900990	4902395	4903799	4905203	4906607	4908010	4909412	4910814	4912216
1913617	4915018	4916418	4917818	4919217	4920616	4922015	4923413	4924810	4926207
1927604	4929000	4930396	4931791	4933186	4934581	4935974	4937368	4938761	4940154
1941546	4942938	4944329	4945720	4947110	4948500	4949890	4951279	4952667	4954056
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1983106	4984484	4985862	4987240	4988617	4989994	4991370	4992746	4994121	4995496
1996871	4998245	4999619	5000992	5002365	5003737	5005109	5006481	5007852	5009222
2010593	5011962	5013332	5014701	5016069	5017437	5018805	5020172	5021539	5022905
2024271	5025637	5027002	5028366	5029731	5031094	5032458	5033821	5035183	5036545
2037907	5039268	5040629	5041989	5043349	5044709	5046068	5047426	5048785	5050142
2051503	5052859	5054215	5055569	5056925	5058280	5059635	5060990	5062344	5063697
2065050	5066403	5067755	5069107	5070459	5071810	5073160	5074511	5075860	5077210
2078559	5079907	5081255	5082603	5083950	5085297	5086644	5087990	5089335	5090680
2092023	5093370	5094714	5096057	5097400	5098743	5100085	5101427	5102768	5104109
2105450	5106790	5108130	5109469	5110808	5112147	5113485	5114823	5116160	5117497
2118834	5120170	5121505	5122841	5124175	5125510	5126844	5128178	5129511	5130844
2132176	5133508	5134840	5136171	5137502	5138832	5140162	5141491	5142820	5144149
2145478	5146806	5148133	5149460	5150787	5152113	5153439	5154764	5156089	5157414
2158738	5160062	5161386	5162709	5164031	5165354	5166676	5167997	5169318	5170639
2171959	5173279	5174598	5175917	5177236	5178554	5179872	5181189	5182507	5183823
2185139	5186455	5187771	5189086	5190400	5191715	5193028	5194342	5195655	5196968
2198280	5199592	5200903	5202214	5203525	5204835	5206145	5207455	5208764	5210073
2211381	5212689	5213996	5215303	5216610	5217916	5219222	5220528	5221833	5223138
2224442	5225746	5227050	5228353	5229656	5230958	5232260	5233562	5234863	5236164
2237465	5238765	5240064	5241364	5242663	5243961	5245259	5246557	5247854	5249151
2250448	5251744	5253040	5254336	5255631	5256925	5258220	5259513	5260807	5262100
2263393	5264685	5265977	5267269	5268560	5269851	5271141	5272431	5273721	5275010
2276299	5277588	5278876	5280163	5281451	5282738	5284024	5285311	5286596	5287882
2289167	5290452	5291736	5293020	5294304	5295587	5296870	5298151	5299434	5300716
2301997	5303278	5304558	5305839	5307118	5308396	5309675	5310953	5312234	5313512

A Table of Logarithms from 1 to 10,000.

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340	5314789	5316066	5317343	5318619	5319896	5321171	5322446	5323721	5324996	5326270
341	5327544	5328817	5330090	5331363	5332635	5333907	5335179	5336450	5337721	5338991
342	5340261	5341531	5342800	5344069	5345338	5346606	5347874	5349141	5350408	5351675
343	5352941	5354207	5355473	5356738	5358003	5359267	5360532	536179	5363059	5364322
344	5365584	5366847	5368109	5369370	5370631	5371892	5373153	5374413	5375673	5376932
345	5378191	5379450	5380708	5381966	5383223	5384481	5385737	5386994	5388250	5389506
346	5390761	5392016	5393271	5394525	5395779	5397032	5398286	5399538	5400791	5402043
347	5403295	5404546	5405797	5407048	5408298	5409548	5410798	5412047	5413296	5414544
348	5415792	5417040	5418288	5419535	5420781	5422028	5423274	5424519	5425765	5427010
349	5428254	5429498	5430742	5431986	5433229	5434472	5435714	5436956	5438198	5439439
350	5440680	5441921	5443161	5444401	5445641	5446880	5448119	5449358	5450596	5451834
351	5453071	5454308	5455545	5456781	5458018	5459253	5460489	5461724	5462958	5464193
352	5465427	5466660	5467893	5469126	5470359	5471591	5472823	5474055	5475286	5476517
353	5477747	5478977	5480207	5481436	5482665	5483894	5485123	5486351	5487578	5488806
354	5490033	5491259	5492486	5493712	5494937	5496162	5497387	5498612	5499836	5501060
355	5502284	5503507	5504730	5505952	5507174	5508396	5509618	5510839	5512059	5513280
356	5514500	5515720	5516939	5518158	5519377	5520595	5521813	5523031	5524248	5525465
357	5526682	5527899	5529115	5530330	5531545	5532760	5533975	5535189	5536403	5537617
358	5538830	5540043	5541256	5542469	5543680	5544892	5546103	5547314	5548524	5549735
359	5550944	5552154	5553363	5554572	5555781	5556989	5558197	5559404	5560612	5561818
360	5563025	5564231	5565437	5566643	5567848	5569053	5570257	5571461	5572665	5573869
361	5575072	5576275	5577477	5578680	5579881	5581083	5582284	5583485	5584686	5585886
362	5587087	5588285	5589484	5590683	5591882	5593080	5594278	5595476	5596673	5597870
363	5599066	5600262	5601457	5602654	5603849	5605044	5606239	5607433	5608627	5609821
364	5611014	5612207	5613399	5614592	5615784	5616975	5618167	5619358	5620548	5621739
365	5622929	5624118	5625307	5626497	5627685	5628874	5630062	5631250	5632437	5633624
366	5634811	5635997	5637183	5638369	5639555	5640740	5641925	5643109	5644293	5645477
367	5646661	5647844	5649027	5650209	5651392	5652573	5653755	5654936	5656117	5657298
368	5658478	5659658	5660838	5662017	5663196	5664375	5665553	5666731	5667909	5669087
369	5670264	5671440	5672617	5673793	5674969	5676145	5677320	5678495	5679669	5680843
370	5682017	5683191	5684364	5685537	5686710	5687882	5689054	5690226	5691397	5692568
371	5693739	5694910	5696080	5697249	5698419	5699588	5700757	5701926	5703094	5704262
372	5705429	5706597	5707764	5708930	5710097	5711263	5712429	5713594	5714759	5715924
373	5717088	5718252	5719416	5720580	5721743	5722906	5724069	5725231	5726393	5727555
374	5728716	5729877	5731038	5732198	5733358	5734518	5735678	5736837	5737996	5739154
375	5740313	5741471	5742628	5743786	5744943	5746099	5747256	5748412	5749568	5750723
376	5751878	5753033	5754188	5755342	5756496	5757650	5758803	5759956	5761109	5762261
377	5763414	5764565	5765717	5766868	5768019	5769170	5770320	5771470	5772620	5773769
378	5774918	5776067	5777215	5778363	5779511	5780659	5781806	5782953	5784100	5785246
379	5786392	5787538	5788683	5789828	5790973	5792117	5793262	5794406	5795550	5796693
380	5797836	5798979	5800121	5801263	5802405	5803547	5804688	5805829	5806969	5808110
381	5809250	5810389	5811529	5812668	5813807	5814945	5816084	5817222	5818359	5819497
382	5820634	5821770	5822907	5824043	5825179	5826314	5827450	5828585	5829719	5830854
383	5831988	5833122	5834255	5835388	5836521	5837654	5838786	5839918	5841050	5842181
384	5843312	5844443	5845574	5846704	5847834	5848963	5850093	5851222	5852351	5853479
385	5854607	5855735	5856863	5857990	5859117	5860244	5861370	5862496	5863622	5864748
386	5865873	5866998	5868123	5869247	5870371	5871495	5872618	5873742	5874865	5875987
387	5877110	5878232	5879353	5880475	5881596	5882717	5883838	5884958	5886078	5887198
388	5888317	5889436	5890555	5891674	5892792	5893910	5895028	5896145	5897263	5898379
389	5899496	5900612	5901728	5902844	5903959	5905075	5906189	5907304	5908418	5909532
390	5910646	5911760	5912873	5913986	5915098	5916210	5917322	5918434	5919546	5920657
391	5921768	5922878	5923988	5925098	5926208	5927318	5928427	5929536	5930644	5931753
392	5932861	5933968	5935076	5936183	5937290	5938397	5939503	5940609	5941715	5942820
393	5943926	5945030	5946135	5947239	5948344	5949447	5950551	5951654	5952757	5953860
394	5954962	5956064	5957166	5958268	5959369	5960470	5961571	5962671	5963771	5964871
395	5965971	5967070	5968169	5969268	5970367	5971465	5972563	5973661	5974758	5975855
396	5976952	5978048	5979145	5980241	5981336	5982432	5983527	5984622	5985717	5986811
397	5987905	5988999	5990092	5991186	5992279	5993371	5994464	5995556	5996648	5997739
398	5998831	5999922	6001013	6002103	6003193	6004283	6005373	6006462	6007551	6008640
399	6009729	6010817	6011905	6012993	6014081	6015168	6016255	6017341	6018428	6019514

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A Table of Logarithms from 1 to 10,000.

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400	6020600	6021686	6022771	6023856	6024941	6026025	6027109	6028193	6029277	6030361
401	6031444	6032527	6033609	6034691	6035772	6036855	6037937	6039018	6040099	6041180
402	6042261	6043341	6044421	6045500	6046580	6047659	6048738	6049816	6050895	6051973
403	6053050	6054128	6055205	6056282	6057359	6058435	6059512	6060587	6061663	6062739
404	6063814	6064889	6065963	6067037	6068111	6069185	6070259	6071332	6072405	6073478
405	6074551	6075622	6076694	6077766	6078837	6079909	6080979	6082050	6083120	6084191
406	6085260	6086330	6087399	6088468	6089537	6090605	6091674	6092742	6093809	6094877
407	6095945	6097011	6098078	6099144	6100210	6101276	6102342	6103407	6104472	6105537
408	6106602	6107666	6108730	6109794	6110857	6111921	6112984	6114046	6115109	6116171
409	6117233	6118295	6119356	6120417	6121478	6122539	6123599	6124660	6125720	6126779
410	6127839	6128898	6129957	6131015	6132074	6133132	6134189	6135247	6136304	6137361
411	6138418	6139475	6140531	6141587	6142643	6143698	6144754	6145809	6146863	6147918
412	6148972	6150026	6151080	6152133	6153187	6154240	6155292	6156345	6157397	6158449
413	6159501	6160552	6161603	6162654	6163705	6164755	6165805	6166855	6167905	6168954
414	6170003	6171052	6172101	6173149	6174197	6175245	6176293	6177340	6178387	6179434
415	6180481	6181527	6182573	6183619	6184665	6185710	6186755	6187800	6188845	6189889
416	6190933	6191977	6193021	6194065	6195107	6196150	6197193	6198235	6199277	6200319
417	6201361	6202402	6203443	6204484	6205524	6206565	6207605	6208645	6209684	6210724
418	6211763	6212801	6213840	6214879	6215917	6216955	6217992	6219030	6220067	6221104
419	6222140	6223177	6224213	6225249	6226284	6227320	6228355	6229390	6230424	6231459
420	6232493	6233527	6234560	6235594	6236627	6237660	6238693	6239725	6240757	6241789
421	6242821	6243852	6244884	6245915	6246945	6247976	6249006	6250036	6251066	6252095
422	6253125	6254154	6255182	6256211	6257239	6258267	6259295	6260322	6261350	6262377
423	6263404	6264430	6265457	6266483	6267509	6268534	6269560	6270585	6271610	6272634
424	6273659	6274683	6275707	6276730	6277754	6278777	6279800	6280823	6281845	6282867
425	6283889	6284911	6285933	6286954	6287975	6288996	6290016	6291037	6292057	6293076
426	6294096	6295115	6296134	6297153	6298172	6299190	6300209	6301226	6302244	6303262
427	6304279	6305296	6306312	6307329	6308345	6309361	6310377	6311393	6312408	6313423
428	6314438	6315452	6316467	6317481	6318495	6319508	6320522	6321535	6322548	6323560
429	6324573	6325585	6326597	6327609	6328620	6329632	6330643	6331654	6332664	6333674
430	6334683	6335694	6336704	6337715	6338724	6339733	6340740	6341749	6342757	6343765
431	6344773	6345780	6346786	6347795	6348801	6349807	6350814	6351820	6352826	6353832
432	6354837	6355843	6356848	6357852	6358857	6359861	6360865	6361869	6362873	6363876
433	6364879	6365882	6366885	6367887	6368889	6369891	6370893	6371894	6372895	6373897
434	6374897	6375898	6376897	6377898	6378898	6379898	6380897	6381896	6382895	6383894
435	6384893	6385891	6386889	6387887	6388884	6389882	6390879	6391876	6392872	6393869
436	6394865	6395861	6396857	6397852	6398847	6399842	6400837	6401832	6402826	6403820
437	6404814	6405808	6406802	6407795	6408788	6409781	6410773	6411765	6412758	6413749
438	6414741	6415733	6416724	6417715	6418705	6419696	6420686	6421676	6422666	6423656
439	6424645	6425634	6426623	6427612	6428601	6429589	6430577	6431565	6432552	6433540
440	6434527	6435514	6436500	6437487	6438473	6439459	6440445	6441431	6442416	6443401
441	6444386	6445371	6446355	6447339	6448323	6449307	6450291	6451274	6452257	6453240
442	6454223	6455205	6456187	6457169	6458151	6459133	6460114	6461095	6462076	6463057
443	6464037	6465018	6465998	6466977	6467957	6468936	6469915	6470894	6471873	6472851
444	6473830	6474808	6475786	6476763	6477741	6478718	6479695	6480671	6481648	6482624
445	6483600	6484576	6485552	6486527	6487502	6488477	6489452	6490426	6491401	6492375
446	6493349	6494322	6495296	6496269	6497242	6498215	6499187	6500160	6501132	6502104
447	6503075	6504047	6505018	6505989	6506960	6507930	6508901	6509871	6510841	6511811
448	6512780	6513749	6514719	6515687	6516656	6517624	6518593	6519561	6520528	6521496
449	6522463	6523431	6524397	6525364	6526331	6527297	6528263	6529229	6530195	6531160
450	6532125	6533090	6534055	6535019	6535984	6536948	6537912	6538876	6539839	6540802
451	6541765	6542728	6543691	6544653	6545616	6546578	6547539	6548501	6549462	6550423
452	6551384	6552345	6553306	6554266	6555226	6556186	6557145	6558105	6559064	6560023
453	6560982	6561941	6562899	6563857	6564815	6565773	6566730	6567688	6568645	6569602
454	6570559	6571515	6572471	6573427	6574383	6575339	6576294	6577250	6578205	6579159
455	6580114	6581068	6582023	6582977	6583930	6584884	6585837	6586790	6587743	6588696
456	6589648	6590601	6591553	6592505	6593456	6594408	6595359	6596310	6597261	6598212
457	6599162	6600112	6601062	6602012	6602962	6603911	6604860	6605809	6606758	6607706
458	6608655	6609603	6610551	6611499	6612446	6613393	6614341	6615287	6616234	6617181
459	6618127	6619073	6620019	6620964	6621910	6622855	6623800	6624745	6625690	6626634

| N. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

A Table of Logarithms from 1 to 10,000.

N.	0	1	2	3	4	5	6	7	8	9
460	6627578	6628522	6629466	6630410	6631353	6632296	6633239	6634182	6635125	6636067
461	6637009	6637951	6638893	6639835	6640776	6641717	6642658	6643599	6644539	6645480
462	6646420	6647360	6648299	6649239	6650178	6651117	6652056	6652995	6653934	6654872
463	6655810	6656748	6657686	6658623	6659560	6660497	6661434	6662371	6663307	6664244
464	6665180	6666116	6667051	6667987	6668922	6669857	6670792	6671727	6672661	6673595
465	6674530	6675463	6676397	6677331	6678264	6679197	6680130	6681062	6681995	6682927
466	6683859	6684791	6685723	6686654	6687585	6688516	6689447	6690378	6691308	6692239
467	6693169	6694099	6695028	6695958	6696887	6697816	6698745	6699674	6700602	6701530
468	6702458	6703386	6704314	6705242	6706169	6707096	6708023	6708950	6709876	6710802
469	6711728	6712654	6713580	6714506	6715431	6716356	6717281	6718206	6719130	6720054
470	6720979	6721903	6722826	6723750	6724673	6725596	6726519	6727442	6728365	6729287
471	6730209	6731131	6732053	6732974	6733896	6734817	6735738	6736659	6737579	6738500
472	6739420	6740340	6741260	6742179	6743099	6744018	6744937	6745856	6746775	6747693
473	6748611	6749529	6750447	6751365	6752283	6753200	6754117	6755034	6755951	6756867
474	6757783	6758700	6759615	6760531	6761447	6762362	6763277	6764192	6765107	6766022
475	6766936	6767850	6768764	6769678	6770592	6771505	6772418	6773332	6774244	6775157
476	6776070	6776982	6777894	6778806	6779718	6780629	6781540	6782452	6783362	6784273
477	6785184	6786094	6787004	6787914	6788824	6789734	6790643	6791552	6792461	6793370
478	6794279	6795187	6796096	6797004	6797912	6798819	6799727	6800634	6801541	6802448
479	6803355	6804262	6805168	6806074	6806980	6807886	6808792	6809697	6810602	6811507
480	6812412	6813317	6814222	6815126	6816030	6816934	6817838	6818741	6819645	6820548
481	6821451	6822354	6823256	6824159	6825061	6825963	6826865	6827766	6828668	6829569
482	6830470	6831371	6832272	6833173	6834073	6834973	6835873	6836773	6837673	6838572
483	6839471	6840370	6841269	6842168	6843066	6843965	6844863	6845761	6846659	6847556
484	6848454	6849351	6850248	6851145	6852041	6852938	6853834	6854730	6855626	6856522
485	6857417	6858313	6859208	6860103	6860998	6861892	6862787	6863681	6864575	6865469
486	6866363	6867256	6868150	6869043	6869936	6870828	6871721	6872613	6873506	6874398
487	6875290	6876181	6877073	6877964	6878855	6879746	6880637	6881528	6882418	6883308
488	6884198	6885088	6885978	6886867	6887757	6888646	6889535	6890423	6891312	6892200
489	6893089	6893977	6894864	6895752	6896640	6897527	6898414	6899301	6900188	6901074
490	6901961	6902847	6903733	6904619	6905505	6906390	6907275	6908161	6909046	6909930
491	6910815	6911699	6912584	6913468	6914352	6915235	6916119	6917002	6917885	6918768
492	6919651	6920534	6921416	6922298	6923180	6924062	6924944	6925826	6926707	6927588
493	6928469	6929350	6930231	6931111	6931991	6932872	6933752	6934631	6935511	6936390
494	6937269	6938149	6939028	6939906	6940785	6941663	6942541	6943419	6944297	6945175
495	6946052	6946929	6947806	6948683	6949560	6950437	6951313	6952189	6953065	6953941
496	6954817	6955692	6956568	6957443	6958318	6959193	6960067	6960942	6961816	6962690
497	6963564	6964438	6965311	6966185	6967058	6967931	6968804	6969676	6970549	6971421
498	6972293	6973165	6974037	6974909	6975780	6976652	6977523	6978394	6979264	6980135
499	6981006	6981876	6982746	6983616	6984485	6985355	6986224	6987093	6987963	6988831
500	6989700	6990569	6991437	6992305	6993173	6994041	6994908	6995776	6996643	6997510
501	6998377	6999244	7000111	7000977	7001843	7002709	7003575	7004441	7005307	7006172
502	7007037	7007902	7008767	7009632	7010496	7011361	7012225	7013089	7013953	7014816
503	7015680	7016543	7017406	7018269	7019132	7019995	7020857	7021720	7022582	7023444
504	7024305	7025167	7026028	7026890	7027751	7028612	7029472	7030333	7031193	7032054
505	7032914	7033774	7034633	7035493	7036352	7037212	7038071	7038930	7039788	7040647
506	7041505	7042363	7043221	7044079	7044937	7045795	7046652	7047509	7048366	7049223
507	7050080	7050936	7051792	7052649	7053505	7054360	7055216	7056072	7056927	7057782
508	7058637	7059492	7060347	7061201	7062055	7062910	7063764	7064617	7065471	7066325
509	7067178	7068031	7068884	7069737	7070589	7071442	7072294	7073145	7073998	7074850
510	7075702	7076553	7077404	7078256	7079107	7079957	7080808	7081659	7082509	7083359
511	7084209	7085059	7085908	7086758	7087607	7088456	7089305	7090154	7091003	7091851
512	7092700	7093548	7094396	7095244	7096091	7096939	7097786	7098633	7099480	7100327
513	7101174	7102020	7102866	7103713	7104559	7105404	7106250	7107096	7107941	7108786
514	7109631	7110476	7111321	7112165	7113010	7113854	7114698	7115542	7116385	7117229
515	7118072	7118915	7119759	7120601	7121444	7122287	7123129	7123971	7124813	7125655
516	7126497	7127339	7128180	7129021	7129862	7130703	7131544	7132385	7133225	7134065
517	7134905	7135745	7136585	7137425	7138264	7139104	7139943	7140782	7141620	7142459
518	7143298	7144136	7144974	7145812	7146650	7147488	7148325	7149162	7150000	7150837
519	7151674	7152510	7153347	7154183	7155019	7155856	7156691	7157527	7158363	7159198
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A Table of Logarithms from 1 to 10,000.

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7168377	7169211	7170044	7170877	7171710	7172543	7173376	7174208	7175041	7175873
7176705	7177537	7178369	7179200	7180032	7180863	7181694	7182525	7183356	7184186
7185017	7185847	7186677	7187507	7188337	7189167	7189996	7190826	7191655	7192484
7193313	7194142	7194970	7195799	7196627	7197455	7198283	7199111	7199938	7200766
7201593	7202420	7203247	7204074	7204901	7205727	7206554	7207380	7208206	7209032
7209857	7210683	7211508	7212334	7213159	7213984	7214809	7215633	7216458	7217282
7218106	7218930	7219754	7220578	7221401	7222225	7223048	7223871	7224694	7225517
7226339	7227162	7227984	7228806	7229628	7230450	7231272	7232093	7232914	7233736
7234557	7235378	7236198	7237019	7237839	7238660	7239480	7240300	7241120	7241939
7242759	7243578	7244397	7245216	7246035	7246854	7247672	7248491	7249309	7250127
7250945	7251763	7252581	7253398	7254216	7255033	7255850	7256667	7257483	7258300
7259116	7259933	7260749	7261565	7262380	7263196	7264011	7264827	7265642	7266457
7267272	7268087	7268901	7269716	7270530	7271344	7272158	7272972	7273786	7274599
7275413	7276226	7277039	7277852	6278664	7279477	7280290	7281102	7281914	7282726
7283538	7284350	7285161	7285972	7286784	7287595	7288406	7289216	7290027	7290838
7291648	7292458	7293268	7294078	7294888	7295697	7296507	7297316	7298125	7298934
7299743	7300552	7301360	7302168	7302977	7303785	7304593	7305400	7306208	7307015
7307823	7308630	7309437	7310244	7311051	7311857	7312663	7313470	7314276	7315082
7315888	7316693	7317499	7318304	7319109	7319914	7320719	7321524	7322329	7323133
7323938	7324742	7325546	7326350	7327153	7327957	7328760	7329564	7330367	7331170
7331973	7332775	7333578	7334380	7335183	7335985	7336787	7337588	7338390	7339192
7339993	7340794	7341595	7342396	7343197	7343997	7344798	7345598	7346398	7347198
7347998	7348798	7349598	7350397	7351196	7351995	7352794	7353593	7354392	7355191
7355989	7356787	7357585	7358383	7359181	7359979	7360776	7361574	7362371	7363168
7363965	7364762	7365558	7366355	7367151	7367948	7368744	7369540	7370335	7371131
7371926	7372722	7373517	7374312	7375107	7375902	7376696	7377491	7378285	7379079
7379873	7380667	7381461	7382254	7383048	7383841	7384634	7385427	7386220	7387013
7387806	7388598	7389390	7390182	7390974	7391766	7392558	7393350	7394141	7394932
7395723	7396514	7397305	7398096	7398887	7399677	7400467	7401257	7402047	7402837
7403627	7404416	7405206	7405995	7406784	7407573	7408362	7409151	7409939	7410728
7411516	7412304	7413092	7413880	7414668	7415455	7416243	7417030	7417817	7418604
7419391	7420177	7420964	7421750	7422537	7423323	7424109	7424895	7425680	7426466
7427251	7428037	7428822	7429607	7430392	7431176	7431961	7432745	7433530	7434314
7435098	7435882	7436665	7437449	7438232	7439016	7439799	7440582	7441365	7442147
7442930	7443712	7444495	7445277	7446059	7446841	7447622	7448404	7449185	7449967
7450748	7451529	7452310	7453091	7453871	7454652	7455432	7456212	7456992	7457772
7458552	7459332	7460111	7460890	7461670	7462449	7463228	7464006	7464785	7465564
7466342	7467120	7467898	7468676	7469454	7470232	7471009	7471787	7472564	7473341
7474118	7474895	7475672	7476448	7477225	7478001	7478777	7479553	7480329	7481105
7481880	7482656	7483431	7484206	7484981	7485756	7486531	7487306	7488080	7488854
7489629	7490403	7491177	7491950	7492724	7493498	7494271	7495044	7495817	7496590
7497363	7498136	7498908	7499681	7500453	7501225	7501997	7502769	7503541	7504312
7505084	7505855	7506626	7507398	7508168	7508939	7509710	7510480	7511251	7512021
7512791	7513561	7514331	7515101	7515870	7516639	7517409	7518178	7518947	7519716
7520484	7521253	7522022	7522790	7523558	7524326	7525094	7525862	7526629	7527397
7528164	7528932	7529699	7530466	7531232	7531999	7532766	7533532	7534298	7535065
7535831	7536596	7537362	7538128	7538893	7539659	7540424	7541189	7541954	7542719
7543483	7544248	7545012	7545777	7546541	7547305	7548069	7548832	7549596	7550359
7551123	7551886	7552649	7553412	7554175	7554937	7555700	7556462	7557224	7557987
7558749	7559510	7560272	7561034	7561795	7562556	7563318	7564079	7564840	7565600
7566361	7567122	7567882	7568642	7569402	7570162	7570922	7571682	7572442	7573201
7573960	7574719	7575479	7576237	7576996	7577755	7578513	7579272	7580030	7580788
7581546	7582304	7583062	7583819	7584577	7585334	7586091	7586848	7587605	7588362
7589119	7589875	7590632	7591388	7592144	7592900	7593656	7594412	7595168	7595923
7596678	7597434	7598189	7598944	7599699	7600453	7601208	7601962	7602717	7603471
7604225	7604979	7605733	7606486	7607240	7607993	4608746	7609500	7610253	7611005
7611758	7612511	7613263	7614016	7614768	7615520	7616272	7617024	7617775	7618527
7619278	7620030	7620781	7621532	7622283	7623034	7623784	7624535	7625285	7626035
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7632033	7632782	7633531

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N.	0	1	2	3	4	5	6	7	8	9
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581	7641761	7642509	7643256	7644003	7644750	7645497	7646244	7646991	7647737	7648484
582	7649230	7649976	7650722	7651468	7652214	7652959	7653705	7654450	7655195	7655941
583	7656686	7657430	7658175	7658920	7659664	7660409	7661153	7661897	7662641	7663385
584	7664128	7664872	7665616	7666359	7667102	7667845	7668588	7669331	7670074	7670816
585	7671559	7672301	7673043	7673785	7674527	7675269	7676011	7676752	7677494	7678235
586	7678976	7679717	7680458	7681199	7681940	7682680	7683421	7684161	7684901	7685641
587	7686381	7687121	7687860	7688600	7689339	7690079	7690818	7691557	7692296	7693035
588	7693773	7694512	7695250	7695988	7696727	7697465	7698203	7698940	7699678	7700416
589	7701153	7701890	7702627	7703364	7704101	7704838	7705575	7706311	7707048	7707784
590	7708520	7709256	7709992	7710728	7711463	7712190	7712934	7713670	7714405	7715140
591	7715875	7716610	7717344	7718079	7718813	7719547	7720282	7721010	7721750	7722483
592	7723217	7723951	7724684	7725417	7726150	7726884	7727616	7728349	7729082	7729815
593	7730547	7731279	7732011	7732743	7733475	7734207	7734939	7735670	7736402	7737133
594	7737864	7738596	7739326	7740057	7740788	7741519	7742249	7742979	7743710	7744440
595	7745170	7745900	7746629	7747359	7748088	7748818	7749547	7750276	7751005	7751734
596	7752463	7753191	7753920	7754648	7755376	7756104	7756832	7757560	7758288	7759016
597	7759743	7760471	7761198	7761925	7762652	7763379	7764106	7764833	7765559	7766286
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599	7774268	7774993	7775718	7776443	7777167	7777892	7778616	7779340	7780065	7780789
600	7781513	7782236	7782960	7783683	7784407	7785130	7785853	7786576	7787299	7788022
601	7788745	7789467	7790190	7790912	7791634	7792356	7793078	7793800	7794522	7795243
602	7795965	7796686	7797408	7798129	7798850	7799571	7800291	7801012	7801732	7802453
603	7803173	7803893	7804613	7805333	7806053	7806773	7807492	7808212	7808931	7809650
604	7810369	7811088	7811807	7812526	7813245	7813963	7814681	7815400	7816118	7816836
605	7817554	7818272	7818989	7819707	7820424	7821141	7821859	7822576	7823293	7824010
606	7824726	7825443	7826159	7826876	7827591	7828308	7829024	7829740	7830456	7831171
607	7831887	7832602	7833318	7834033	7834748	7835463	7836178	7836892	7837607	7838321
608	7839036	7839750	7840464	7841178	7841892	7842606	7843319	7844033	7844746	7845460
609	7846173	7846886	7847599	7848312	7849024	7849737	7850450	7851162	7851874	7852586
610	7853298	7854010	7854722	7855434	7856145	7856857	7857568	7858279	7858990	7859701
611	7860412	7861123	7861833	7862544	7863254	7863965	7864675	7865385	7866095	7866805
612	7867514	7868224	7868933	7869643	7870352	7871061	7871770	7872479	7873186	7873896
613	7874605	7875313	7876021	7876730	7877438	7878146	7878854	7879561	7880269	7880976
614	7881684	7882391	7883098	7883805	7884512	7885219	7885926	7886632	7887339	7888045
615	7888751	7889457	7890163	7890869	7891575	7892281	7892986	7893692	7894397	7895102
616	7895807	7896512	7897217	7897922	7898626	7899331	7900035	7900739	7901444	7902148
617	7902852	7903555	7904259	7904963	7905666	7906370	7907073	7907776	7908479	7909182
618	7909885	7910587	7911290	7911992	7912695	7913397	7914099	7914801	7915503	7916205
619	7916906	7917608	7918309	7919011	7919712	7920413	7921114	7921815	7922516	7923216
620	7923917	7924617	7925318	7926018	7926718	7927418	7928118	7928817	7929517	7930217
621	7930916	7931615	7932314	7933014	7933712	7934411	7935110	7935809	7936507	7937206
622	7937904	7938602	7939300	7939998	7940696	7941394	7942091	7942789	7943486	7944183
623	7944880	7945578	7946274	7946971	7947668	7948365	7949061	7949757	7950454	7951150
624	7951846	7952542	7953238	7953933	7954629	7955324	7956020	7956715	7957410	7958105
625	7958800	7959495	7960190	7960884	7961579	7962273	7962967	7963662	7964356	7965050
626	7965743	7966437	7967131	7967824	7968517	7969211	7969904	7970597	7971290	7971983
627	7972675	7973368	7974060	7974753	7975445	7976137	7976829	7977521	7978213	7978905
628	7979596	7980288	7980979	7981671	7982362	7983053	7983744	7984435	7985125	7985816
629	7986506	7987197	7987887	7988577	7989267	7989957	7990647	7991337	7992027	7992716
630	7993405	7994095	7994784	7995473	7996162	7996851	7997540	7998228	7998917	7999605
631	8000294	8000982	8001670	8002358	8003046	8003734	8004421	8005109	8005796	8006484
632	8007171	8007858	8008545	8009232	8009919	8010605	8011292	8011978	8012665	8013351
633	8014037	8014723	8015409	8016095	8016781	8017466	8018152	8018837	8019522	8020208
634	8020893	8021578	8022262	8022947	8023632	8024316	8025001	8025685	8026369	8027053
635	8027737	8028421	8029105	8029789	8030472	8031156	8031839	8032522	8033205	8033888
636	8034571	8035254	8035937	8036619	8037302	8037984	8038666	8039348	8040031	8040712
637	8041394	8042076	8042758	8043439	8044121	8044802	8045483	8046164	8046845	8047526
638	8048207	8048887	8049568	8050248	8050929	8051609	8052289	8052969	8053649	8054329
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A Table of Logarithms from 1 to 10,000.

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8061800	8062478	8063157	8063835	8064513	8065191	8065869	8066547	8067225	8067903
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8082110	8082785	8083460	8084136	8084811	8085486	8086160	8086835	8087510	8088184
8088859	8089533	8090207	8090881	8091555	8092229	8092903	8093577	8094250	8094924
8095597	8096270	8096944	8097617	8098290	8098962	8099635	8100308	8100980	8101653
8102325	8102997	8103670	8104342	8105013	8105685	8106357	8107029	8107700	8108372
8109043	8109714	8110385	8111056	8111727	8112398	8113068	8113739	8114409	8115080
8115750	8116420	8117090	8117760	8118430	8119100	8119769	8120439	8121108	8121778
8122447	8123116	8123785	8124454	8125123	8125792	8126460	8127129	8127797	8128465
8129134	8129802	8130470	8131138	8131805	8132473	8133141	8133808	8134475	8135143
8135810	8136477	8137144	8137811	8138478	8139144	8139811	8140477	8141144	8141810
8142476	8143142	8143808	8144474	8145140	8145805	8146471	8147136	8147801	8148467
8149132	8149797	8150462	8151127	8151791	8152456	8153120	8153785	8154449	8155113
8155777	8156441	8157105	8157769	8158433	8159097	8159760	8160423	8161087	8161750
8162413	8163076	8163739	8164402	8165064	8165727	8166389	8167052	8167714	8168376
8169038	8169700	8170362	8171024	8171686	8172347	8173009	8173670	8174331	8174993
8175654	8176315	8176976	8177636	8178297	8178958	8179618	8180278	8180939	8181599
8182259	8182919	8183579	8184239	8184898	8185558	8186217	8186877	8187536	8188195
8188854	8189513	8190172	8190831	8191489	8192148	8192806	8193465	8194123	8194781
8195439	8196097	8196755	8197413	8198071	8198728	8199386	8200043	8200700	8201358
8202015	8202672	8203328	8203985	8204642	8205298	8205955	8206611	8207268	8207924
8208580	8209236	8209892	8210548	8211203	8211859	8212514	8213170	8213825	8214480
8215135	8215790	8216445	8217100	8217755	8218409	8219064	8219718	8220372	8221027
8221681	8222335	8222989	8223642	8224296	8224950	8225603	8226257	8226910	8227563
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8234742	8235394	8236046	8236698	8237350	8238002	6238653	8239305	8239956	8240607
8241258	8241909	8242560	8243211	8243862	8244513	8245163	8245814	8246464	8247114
8247765	8248415	8249065	8249715	8250364	8251014	8251664	8252313	8252963	8253612
8254261	8254910	8255559	8256208	8256857	8257506	8258154	8258803	8259451	8260100
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8267225	8267872	8268519	8269166	8269813	8270460	6271107	8271753	8272400	8273046
8273693	8274339	8274985	8275631	8276277	8276923	8277569	8278214	8278860	8279505
8280151	8280796	8281441	8282086	8282731	8283376	8284021	8284665	8285310	8285955
8286599	8287243	8287887	8288532	8289176	8289820	8290463	8291107	8291751	8292394
8293038	8293681	8294324	8294967	8295611	8296254	8296896	8297539	8298182	8298824
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8305887	8306528	8307169	8307811	8308452	8309093	8309734	8310375	8311016	8311656
8312297	8312937	8313578	8314218	8314858	8315499	8316139	8316778	8317418	8318058
8318698	8319337	8319977	8320616	8321255	8321895	8322534	8323173	8323812	8324450
8325089	8325728	8326306	8327005	8327643	8328281	8328919	8329558	8330195	8330833
8331471	8332109	8332746	8333384	8334021	8334659	8335296	8335933	8336570	8337207
8337844	8338480	8339117	8339754	8340390	8341027	8341663	8342299	8342935	8343571
8344207	8344843	8345479	8346114	8346750	8347385	8348021	8348656	8349291	8349926
8355561	8351196	8351831	8352465	8353100	8353735	8354369	8355003	8355638	8356272
8356906	8357540	8358174	8358807	8359441	8360075	8360708	8361341	8361975	8362608
8363241	8363874	8364507	8365140	8365773	8366405	8367038	8367670	8368303	8368935
8369567	8370199	8370832	8371463	8372095	8372727	8373359	8373990	8374622	8375253
8375884	8376516	8377147	8377778	8378409	8379039	8379670	8380301	8380931	8381562
8382192	8362822	8383453	8384083	8384713	8385343	8385973	8386602	8387232	8387861
8388491	8389120	8389750	8390379	8391008	8391637	8392266	8392895	8393523	8394152
8394780	8395409	8396037	8396666	8397294	8397922	8398550	8399178	8399806	8400433
8401061	8401688	8402316	8402943	8403571	8404198	8404825	8405452	8406079	8406706
8407332	8407959	8408586	8409212	8409838	8410465	8411091	8411717	8412343	8412969
8413595	8414220	8414846	8415472	8416097	8416723	8417348	8417973	8418598	8419223
8419848	8420473	8421098	8421722	8422347	8422971	8423596	8424220	8424844	8425468
8426092	8426716	8427340	8427964	8428588	8429211	8429835	8430458	8431081	8431705
8432328	8432951	8433574	8434197	8434819	8435442	8436065	8436687	8437310	8437932
8438554	8439176	8439798	8440420	8441042	8441664	8442286	8442907	8443529	8444150
8444772	8445393	8446014	8446635	8447256	8447877	8448498	8449119	8449739	8450360

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701	8457180	8457800	8458419	8459038	8459658	8460277	8460896	8461515	8462134	8462752
702	8463371	8463990	8464608	8465227	8465845	8466463	8467081	8467700	8468318	8468935
703	8469553	8470171	8470789	8471406	8472024	8472641	8473258	8473876	8474493	8475110
704	8475727	8476343	8476960	8477577	8478193	8478810	8479426	8480043	8480659	8481275
705	8481891	8482507	8483123	8483739	8484355	8484970	8485586	8486201	8486817	8487432
706	8488047	8488662	8489277	8489892	8490507	8491122	8491736	8492351	8492965	8493580
707	8494194	8494808	8495423	8496037	8496651	8497264	8497878	8498492	8499106	8499719
708	8500333	8500946	8501559	8502172	8502786	8503399	8504011	8504624	8505237	8505850
709	8506462	8507075	8507687	8508300	8508912	8509524	8510136	8510748	8511360	8511972
710	8512583	8513195	8513807	8514418	8515030	8515641	8516252	8516863	8517474	8518085
711	8518696	8519307	8519917	8520528	8521139	8521749	8522359	8522970	8523580	8524190
712	8524800	8525410	8526020	8526629	8527239	8527849	8528458	8529068	8529677	8530286
713	8530895	8531504	8532113	8532722	8533331	8533940	8534548	8535157	8535765	8536374
714	8536982	8537590	8538198	8538807	8539414	8540022	8540630	8541238	8541845	8542453
715	8543060	8543668	8544275	8544882	8545489	8546096	8546703	8547310	8547917	8548524
716	8549130	8549737	8550343	8550950	8551556	8552162	8552768	8553374	8553980	8554586
717	8555192	8555797	8556403	8557008	8557614	8558219	8558824	8559429	8560035	8560640
718	8561244	8561849	8562454	8563059	8563663	8564268	8564872	8565476	8566081	8566685
719	8567289	8567893	8568497	8569101	8569704	8570308	8570912	8571515	8572118	8572722
720	8573325	8573928	8574531	8575134	8575737	8576340	8576943	8577545	8578148	8578750
721	8579353	8579955	8580557	8581159	8581761	8582363	8582965	8583567	8584169	8584770
722	8585372	8585973	8586575	8587176	8587777	8588379	8588980	8589581	8590181	8590782
723	8591383	8591984	8592584	8593185	8593785	8594385	8594986	8595586	8596186	8596786
724	8597386	8597985	8598585	8599185	8599784	8600384	8600983	8601583	8602182	8602781
725	8603380	8603979	8604578	8605177	8605776	8606374	8606973	8607571	8608170	8608768
726	8609366	8609964	8610562	8611160	8611758	8612356	8612954	8613552	8614149	8614747
727	8615344	8615941	8616539	8617136	8617733	8618330	8618927	8619524	8620121	8620717
728	8621314	8621910	8622507	8623103	8623699	8624296	8624892	8625488	8626084	8626680
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730	8633229	8633823	8634418	8635013	8635608	8636202	8636797	8637391	8637985	8638580
731	8639174	8639768	8640362	8640956	8641550	8642143	8642737	8643331	8643924	8644517
732	8645111	8645704	8646297	8646890	8647483	8648076	8648669	8649262	8649855	8650447
733	8651040	8651632	8652225	8652817	8653409	8654001	8654593	8655185	8655777	8656369
734	8656961	8657552	8658144	8658735	8659327	8659918	8660509	8661100	8661691	8662282
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736	8668778	8669368	8669958	8670548	8671138	8671728	8672317	8672907	8673496	8674086
737	8674675	8675264	8675853	8676442	8677031	8677620	8678209	8678798	8679387	8679975
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739	8686444	8687032	8687620	8688207	8688794	8689382	8689969	8690556	8691143	8691730
740	8692317	8692904	8693491	8694077	8694664	8695251	8695837	8696423	8697010	8697596
741	8698182	8698768	8699354	8699940	8700526	8701112	8701697	8702283	8702868	8703454
742	8704039	8704624	8705210	8705795	8706380	8706965	8707549	8708134	8708719	8709304
743	8709888	8710473	8711057	8711641	8712226	8712810	8713394	8713978	8714562	8715146
744	8715729	8716313	8716897	8717480	8718064	8718647	8719230	8719814	8720397	8720980
745	8721563	8722146	8722728	8723311	8723894	8724476	8725059	8725641	8726224	8726806
746	8727388	8727970	8728552	8729134	8729716	8730298	8730880	8731462	8732043	8732625
747	8733206	8733787	8734369	8734950	8735531	8736112	8736693	8737274	8737855	8738435
748	8739016	8739597	8740177	8740757	8741338	8741918	8742498	8743078	8743658	8744238
749	8744818	8745398	8745978	8746557	8747137	8747716	8748296	8748875	8749454	8750034
750	8750613	8751192	8751771	8752349	8752928	8753507	8754086	8754664	8755243	8755821
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752	8762178	8762756	8763333	8763911	8764488	8765065	8765642	8766219	8766796	8767373
753	8767950	8768526	8769103	8769680	8770256	8770833	8771409	8771985	8772561	8773137
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755	8779470	8780045	8780620	8781195	8781770	8782345	8782919	8783494	8784069	8784643
756	8785218	8785792	8786367	8786941	8787515	8788089	8788663	8789237	8789811	8790385
757	8790959	8791532	8792106	8792680	8793253	8793826	8794400	8794973	8795546	8796119
758	8796692	8797265	8797838	8798411	8798983	8799556	8800128	8800701	8801273	8801846
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875	9420081	9420577	9421073	9421569	9422065	9422562	9423058	9423553	9424049	9424545
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886	9474337	9474827	9475317	9475807	9476297	9476787	9477277	9477767	9478257	9478747
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919	9633155	9633628	9634100	9634573	9635045	9635517	9635990	9636462	9636934	9637406
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927	9670797	9671266	9671734	9672203	9672671	9673139	9673608	9674076	9674544	9675012
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936	9712758	9713222	9713686	9714150	9714614	9715078	9715542	9716005	9716469	9716932
937	9717396	9717859	9718323	9718786	9719249	9719713	9720176	9720639	9721102	9721565
938	9722028	9722491	9722954	9723417	9723880	9724343	9724805	9725268	9725731	9726193
939	9726656	9727118	9727581	9728043	9728506	9728968	9729430	9729892	9730354	9730816

N.	0	1	2	3	4	5	6	7	8	9
940	9731279	9731741	9732202	9732664	9733126	9733588	9734050	9734511	9734973	9735435
941	9735896	9736358	9736819	9737281	9737742	9738203	9738664	9739126	9739587	9740048
942	9740509	9740970	9741431	9741892	9742353	9742814	9743274	9743735	9744196	9744656
943	9745117	9745577	9746038	9746498	9746959	9747419	9747879	9748340	9748800	9749260
944	9749720	9750180	9750640	9751100	9751560	9752020	9752479	9752939	9753399	9753858
945	9754318	9754778	9755237	9755697	9756156	9756615	9757075	9757534	9757993	9758452
946	9758911	9759370	9759829	9760288	9760747	9761206	9761665	9762124	9762582	9763041
947	9763500	9763958	9764417	9764875	9765334	9765792	9766251	9766709	9767167	9767625
948	9768083	9768541	9769000	9769458	9769915	9770373	9770831	9771289	9771747	9772204
949	9772662	9773120	9773577	9774035	9774492	9774950	9775407	9775864	9776322	9776779
950	9777236	9777693	9778150	9778607	9779064	9779521	9779978	9780435	9780892	9781348
951	9781805	9782262	9782718	9783175	9783631	9784088	9784544	9785001	9785457	9785913
952	9786369	9786826	9787282	9787738	9788194	9788650	9789106	9789562	9790017	9790473
953	9790929	9791385	9791840	9792296	9792751	9793207	9793662	9794118	9794573	9795028
954	9795484	9795939	9796394	9796849	9797304	9797759	9798214	9798669	9799124	9799579
955	9800034	9800488	9800943	9801398	9801852	9802307	9802761	9803216	9803670	9804125
956	9804579	9805033	9805487	9805942	9806396	9806850	9807304	9807758	9808212	9808666
957	9809119	9809573	9810027	9810481	9810934	9811388	9811841	9812295	9812748	9813202
958	9813655	9814108	9814562	9815015	9815468	9815921	9816374	9816827	9817280	9817733
959	9818186	9818639	9819092	9819544	9819997	9820450	9820902	9821355	9821807	9822260
960	9822714	9823165	9823617	9824069	9824522	9824974	9825426	9825878	9826330	9826782
961	9827234	9827686	9828138	9828589	9829041	9829493	9829945	9830396	9830848	9831299
962	9831751	9832202	9832654	9833105	9833556	9834007	9834459	9834910	9835361	9835812
963	9836263	9836714	9837165	9837616	9838066	9838517	9838968	9839419	9839869	9840320
964	9840770	9841221	9841671	9842122	9842572	9843022	9843473	9843923	9844373	9844823
965	9845273	9845723	9846173	9846623	9847073	9847523	9847973	9848422	9848872	9849322
966	9849771	9850221	9850670	9851120	9851569	9852019	9852468	9852917	9853366	9853816
967	9854265	9854714	9855163	9855612	9856061	9856510	9856959	9857407	9857856	9858305
968	9858754	9859202	9859651	9860099	9860548	9860996	9861445	9861893	9862341	9862790
969	9863238	9863686	9864134	9864582	9865030	9865478	9865926	9866374	9866822	9867270
970	9867717	9868165	9868613	9869060	9869508	9869955	9870403	9870850	9871298	9871745
971	9872192	9872640	9873087	9873534	9873981	9874428	9874875	9875322	9875769	9876216
972	9876663	9877109	9877556	9878003	9878450	9878896	9879343	9879789	9880236	9880682
973	9881128	9881575	9882021	9882467	9882913	9883360	9883806	9884252	9884698	9885144
974	9885590	9886035	9886481	9886927	9887373	9887818	9888264	9888710	9889155	9889601
975	9890046	9890492	9890937	9891382	9891828	9892273	9892718	9863163	9893608	9894053
976	9894498	9894943	9895388	9895833	9896278	9896722	9897167	9897612	9898057	9898501
977	9898946	9899390	9899835	9900279	9900723	9901168	9901612	9902056	9902500	9902944
978	9903389	9903833	9904277	9904721	9905164	9905608	9906052	9906496	9906940	9907383
979	9907827	9908271	9908714	9909158	9909601	9910044	9910488	9910931	9911374	9911818
980	9912261	9912704	9913147	9913590	9914033	9914476	9914919	9915362	9915805	9916247
981	9916690	9917133	9917575	9918018	9918461	9918903	9919345	9919788	9920230	9920673
982	9921115	9921557	9921999	9922441	9922884	9923326	9923768	9924210	9924651	9925093
983	9925535	9925977	9926419	9926860	9927302	9927744	9928185	9928627	9929068	9929510
984	9929951	9930392	9930834	9931275	9931716	9932157	9932598	9933039	9933480	9953921
985	9934362	9934803	9935244	9935685	9936126	9936566	9937007	9937448	9937888	9938329
986	9938769	9939209	9939650	9940090	9940531	9940971	9941411	9941851	9942291	9942731
986	9943172	9943612	9944051	9944491	9944931	9945371	9945811	9946251	9946690	9947130
988	9947569	9948009	9948448	9948888	9949327	9949767	9950206	9950643	9951085	9951524
989	9951961	9952402	9952841	9953280	9953719	9954158	9954597	9955036	9955474	9955913
990	9956352	9956791	9957229	9957668	9958106	9958545	9958983	9959422	9959860	9960298
991	9960736	9961175	9961613	9962051	9962489	9962927	9963365	9963803	9964241	9964679
992	9965117	9965554	9965992	9966430	9966868	9967305	9967743	9968180	9968618	9969055
993	9969492	9969930	9970367	9970804	9971242	9971679	9972116	9972553	9972990	9973427
994	9973864	9974301	9974738	9975174	9975611	9976048	9976485	9976921	9977358	9977794
995	9978231	9978667	9979104	9979540	9979976	9980413	9980849	9981285	9981721	9982157
996	9982593	9983029	9983465	9983901	9984337	9984773	9985209	9985645	9986080	9986516
997	9986952	9987387	9987823	9988258	9988694	9989129	9989564	9990000	9990435	9990870
998	9991305	9991741	9992176	9992611	9993046	9993481	9993916	9994350	9994785	9995220
999	9995655	9996090	9996524	9996959	9997393	9997828	9998262	9998697	9999131	9999566
N.	0	1	2	3	4	5	6	7	8	9

A

TABLE

OF

LOGARITHMIC

SINES, TANGENTS, AND SECANTS,

For every Degree and Minute of the Quadrant.

N. B. The minutes in the left-hand column of each page, increaſing downwards, belong to the degrees at the top; and thoſe increaſing upwards, in the right-hand column, belong to the degrees below.

0 Degree.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	Inf. Neg.	10.00 00000	Inf. Neg.	Infinite.	10.0000000	Infinite.	60
1	6.4637261	10.0000000	6.4637261	13.5362739	10.0000000	13.5362739	59
2	6.7647561	9.9999999	6.7647562	13.2352438	10.0000001	13.2352439	58
3	6.9408473	9.9999998	6.9408475	13.0591525	10.0000002	13.0591527	57
4	7.0657860	9.9999997	7.0657863	12.9342137	10.0000003	12.9342140	56
5	7.1626960	9.9999995	7.1626964	12.8373036	10.0000005	12.8373040	55
6	7.2418771	9.9999993	7.2418778	12.7581222	10.0000007	12.7581229	54
7	7.3088239	9.9999991	7.3088248	12.6911752	10.0000009	12.6911761	53
8	7.3668157	9.9999988	7.3668169	12.6331831	10.0000012	12.6331843	52
9	7.4179681	9.9999985	7.4179696	12.5820304	10.0000015	12.5820319	51
10	7.4637255	9.9999982	7.4637273	12.5362727	10.0000018	12.5362745	50
11	7.5051181	9.9999978	7.5051203	12.4948797	10.0000022	12.4948819	49
12	7.5429065	9.9999974	7.5429091	12.4570909	10.0000026	12.4570935	48
13	7.5776684	9 9999969	7.577671 5	12.4223285	10.0000031	12.4223316	47
14	7.6098530	9.9999964	7.6098566	12.3901434	10.0000036	12.3901470	46
15	7.6398160	9.9999959	7.6398201	12.3601799	10.0000041	12.3601840	45
16	7.6678445	9.9999953	7.6678492	12.3321508	10.0000047	12.3321555	44
17	7.6941733	9.9999947	7.6941786	12.3058214	10.0000053	12.3058267	43
18	7.7189966	9.9999940	7.7190026	12.2809974	10.0000060	12.2810034	42
19	7.7424775	9.9999934	7.7424841	12.2575159	10.0000066	12.2575225	41
20	7.7647537	9.9999927	7.7647610	12.2352390	10.0000073	12.2352463	40
21	7.7859427	9.9999919	7.7859508	12.2140492	10.0000081	12.2140573	39
22	7.8061458	9.99999 11	7.8061547	12.1938453	10.0000089	12.1938542	38
23	7.8254507	9.9999903	7.8254604	12.1745396	10.0000097	12.1745493	37
24	7.8439338	9.9999894	7.8439444	12.1560556	10.0000106	12.1560662	36
25	7.8616623	9.9999885	7.8616738	12.1383262	10.0000115	12.1383377	35
26	7.8786953	9.9999876	7.8787077	12.1212923	10.0000124	12.1213047	34
27	7.8950854	9.9999866	7.8950988	12.1049012	10.0000134	12.1049146	33
28	7.9108793	9.9999856	7.9108938	12.0891062	10.0000144	12.0891207	32
29	7.9261190	9.9999845	7.9261344	12.0738656	10.0000155	12.0738810	31
30	7.9408419	9.9999835	7.9408584	12.0591416	10.0000165	12.0591581	30
31	7.9550819	9.9999823	7.9550996	12.0449004	10.0000177	12.0449181	29
32	7.9688698	9.9999812	7.9688886	12.0311114	10.0000188	12.0311302	28
33	7.9822334	9.9999800	7.9822534	12.0177466	10.0000200	12.0177666	27
34	7.9951980	9.9999788	7.9952192	12.0047808	10.0000212	12.0048020	26
35	8.0077867	9.9999775	8.0078092	11.9921908	10.0000225	11.9922133	25
36	8.0200207	9.9999762	8.0200445	11.9799555	10.0000238	11.9799793	24
37	8.0319195	9.9999748	8.0319446	11.9680554	10.0000252	11.9680805	23
38	8.0435009	9.9999735	8.0435274	11.9564726	10.0000265	11.9564991	22
39	8.0547814	9.9999721	8.0548094	11.9451906	10.0000279	11.9452186	21
40	8.0657763	9.9999706	8.0658057	11.9341943	10.0000294	11.9342237	20
41	8.0764997	9.9999691	8.0765306	11.9234694	10.0000309	11.9235003	19
42	8.0869646	9 9999676	8.0869970	11.9130030	10.0000324	11.9130354	18
43	8.0971832	9.9999660	8.0972172	11.9027828	10.0000340	11.9028168	17
44	8.1071669	9.9999644	8.1072025	11.8927975	10.0000356	11.8928331	16
45	8.1169262	9.9999628	8.1169634	11.8830366	10.0000372	11.8830738	15
46	8.1264710	9.9999611	8.1265099	11.8734901	10.0000389	11.8735290	14
47	8.1358104	9.9999594	8.1358510	11.8641490	10.0000406	11.8641896	13
48	8.1449532	9.9999577	8.1449956	11.8550044	10.0000423	11.8550468	12
49	8.1539075	9.9999559	8.1539516	11.8460484	10.0000441	11.8460925	11
50	8.1626808	9.9999541	8.1627267	11.8372733	10.0000459	11.8373192	10
51	8.1712804	9.9999522	8.1713282	11.8286718	10.0000478	11.8287196	9
52	8.1797129	9.9999503	8.1797626	11.8202374	10.0000497	11.8202871	8
53	8.1879848	9.9999484	8.1880364	11.8119636	10.0000516	11.8120152	7
54	8.1961020	9.9999464	8.1961556	11.8038444	10.0000536	11.8038980	6
55	8.2040703	9.9999444	8.2041259	11.7958741	10.0000556	11.7959297	5
56	8.2118949	9.9999424	8.2119526	11.7880474	10.0000576	11.7881051	4
57	8.2195811	9 9999403	8.2196408	11.7803592	10.0000597	11.7804189	3
58	8.2271335	9.9999382	8.2271953	11.7728047	10.0000618	11.7728665	2
59	8.2345568	9.9999360	8.2346208	11.7653792	10.0000640	11.7654432	1
60	8.2418553	9.9999338	8.2419215	11.7580785	10.0000662	11.7581447	0
M	Co-fine.	Sine.	Co-tang	Tangent	Co-fecant	Secant.	M

1 Degree.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.2418553	9.9999338	8.2419215	11.7580785	10.0000602	11.7581447	60
1	8.2490332	9.9999316	8.2491015	11.7508985	10.0000684	11.7509668	59
2	8.2560943	9.9999294	8.2561649	11.7438351	10.0000706	11.7439057	58
3	8.2630424	9.9999271	8.2631153	11.7368847	10.0000729	11.7369576	57
4	8.2698810	9.9999247	8.2699563	11.7300437	10.0000753	11.7301190	56
5	8.2766136	9.9999224	8.2766912	11.7233088	10.0000776	11.7233864	55
6	8.2832434	9.9999200	8.2833234	11.7166766	10.0000800	11.7167566	54
7	8.2897734	9.9999175	8.2898559	11.7101441	10.0000825	11.7102266	53
8	8.2962067	9.9999150	8.2962917	11.7037083	10.0000850	11.7037933	52
9	8.3025460	9.9999125	8.3026335	11.6973665	10.0000875	11.6974540	51
10	8.3087941	9.9999100	8.3088842	11.6911158	10.0000900	11.6912059	50
11	8.3149536	9.9999074	8.3150462	11.6849538	10.0000926	11.6850464	49
12	8.3210269	9.9999047	8.3211221	11.6788779	10.0000953	11.6789731	48
13	8.3270163	9.9999021	8.3271143	11.6728857	10.0000979	11.6729837	47
14	8.3329243	9.9998994	8.3330249	11.6669751	10.0001006	11.6670757	46
15	8.3387529	9.9998966	8.3388563	11.6611437	10.0001034	11.6612471	45
16	8.3445043	9.9998939	8.3446105	11.6553895	10.0001061	11.6554957	44
17	8.3501805	9.9998911	8.3502895	11.6497105	10.0001089	11.6498195	43
18	8.3557835	9.9998882	8.3558953	11.6441047	10.0001118	11.6442165	42
19	8.3613150	9.9998853	8.3614297	11.6385703	10.0001147	11.6386850	41
20	8.3667769	9.9998824	8.3668945	11.6331055	10.0001176	11.6332231	40
21	8.3721710	9.9998794	8.3722915	11.6277085	10.0001206	11.6278290	39
22	8.3774988	9.9998764	8.3776223	11.6223777	10.0001236	11.6225012	38
23	8.3827620	9.9998734	8.3828886	11.6171114	10.0001266	11.6172380	37
24	8.3879622	9.9998703	8.3880918	11.6119082	10.0001297	11.6120378	36
25	8.3931008	9.9998672	8.3932336	11.6067664	10.0001328	11.6068992	35
26	8.3981793	9.9998641	8.3983152	11.6016848	10.0001359	11.6018207	34
27	8.4031990	9.9998609	8.4033381	11.5966619	10.0001391	11.5968010	33
28	8.4081614	9.9998577	8.4083037	11.5916963	10.0001423	11.5918386	32
29	8.4130676	9.9998544	8.4132132	11.5867868	10.0001456	11.5869324	31
30	8.4179190	9.9998512	8.4180679	11.5819321	10.0001488	11.5820810	30
31	8.4227168	9.9998478	8.4228690	11.5771310	10.0001522	11.5772832	29
32	8.4274621	9.9998445	8.4276176	11.5723824	10.0001555	11.5725379	28
33	8.4321561	9.9998411	8.4323150	11.5676850	10.0001589	11.5678439	27
34	8.4367999	9.9998376	8.4369622	11.5630378	10.0001624	11.5632001	26
35	8.4413944	9.9998342	8.4415603	11.5584397	10.0001658	11.5586056	25
36	8.4459409	9.9998306	8.4461103	11.5538897	10.0001694	11.5540591	24
37	8.4504402	9.9998271	8.4506131	11.5493869	10.0001729	11.5495598	23
38	8.4548934	9.9998235	8.4550699	11.5449301	10.0001765	11.5451066	22
39	8.4593013	9.9998199	8.4594814	11.5405186	10.0001801	11.5406987	21
40	8.4636649	9.9998162	8.4638486	11.5361514	10.0001838	11.5363351	20
41	8.4679850	9.9998125	8.4681725	11.5318275	10.0001875	11.5320150	19
42	8.4722626	9.9998088	8.4724538	11.5275462	10.0001912	11.5277374	18
43	8.4764984	9.9998050	8.4766933	11.5233067	10.0001950	11.5235016	17
44	8.4806932	9.9998012	8.4808920	11.5191080	10.0001988	11.5193068	16
45	8.4848479	9.9997974	8.4850505	11.5149495	10.0002026	11.5151521	15
46	8.4889632	9.9997935	8.4891696	11.5108304	10.0002065	11.5110368	14
47	8.4930398	9.9997896	8.4932502	11.5067498	10.0002104	11.5069602	13
48	8.4970784	9.9997856	8.4972928	11.5027072	10.0002144	11.5029216	12
49	8.5010798	9.9997817	8.5012982	11.4987018	10.0002183	11.4989202	11
50	8.5050447	9.9997776	8.5052671	11.4947329	10.0002224	11.4949553	10
51	8.5089736	9.9997736	8.5092001	11.4907999	10.0002264	11.4910264	9
52	8.5128673	9.9997695	8.5130978	11.4869022	10.0002305	11.4871327	8
53	8.5167264	9.9997653	8.5169610	11.4830390	10.0002347	11.4832736	7
54	8.5205514	9.9997612	8.5207902	11.4792098	10.0002388	11.4794486	6
55	8.5243430	9.9997570	8.5245860	11.4754140	10.0002430	11.4756570	5
56	8.5281017	9.9997527	8.5283490	11.4716510	10.0002473	11.4718983	4
57	8.5318281	9.9997484	8.5320797	11.4679203	10.0002516	11.4681719	3
58	8.5355228	9.9997441	8.5357787	11.4642213	10.0002559	11.4644772	2
59	8.5391863	9.9997398	8.5394466	11.4605534	10.0002602	11.4608137	1
60	8.5428192	9.9997354	8.5430838	11.4569162	10.0002646	11.4571808	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

2 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.5426192	9.9997354	8.5430838	11.4569162	10.0002646	11.4571808	60
1	8.5464218	9.9997309	8.5466909	11.4533091	10.0002691	11.4535782	59
2	8.5499948	9.9997265	8.5502683	11.4497317	10.0002735	11.4500052	58
3	8.5535386	9.9997220	8.5538166	11.4461834	10.0002780	11.4464614	57
4	8.5570536	9.9997174	8.5573362	11.4426638	10.0002826	11.4429464	56
5	8.5605404	9.9997128	8.5608276	11.4391724	10.0002872	11.4394596	55
6	8.5639994	9.9997082	8.5642912	11.4357088	10.0002918	11.4360006	54
7	8.5674310	9.9997036	8.5677275	11.4322725	10.0002964	11.4325690	53
8	8.5708357	9.9996989	8.5711368	11.4288632	10.0003011	11.4291643	52
9	8.5742139	9.9996942	8.5745197	11.4254803	10.0003058	11.4257861	51
10	8.5775660	9.9996894	8.5778766	11.4221234	10.0003106	11.4224340	50
11	8.5808923	9.9996846	8.5812077	11.4187923	10.0003154	11.4191077	49
12	8.5841933	9.9996798	8.5845136	11.4154864	10.0003202	11.4158067	48
13	8.5874694	9.9996749	8.5877945	11.4122055	10.0003251	11.4125306	47
14	8.5907209	9.9996700	8.5910509	11.4089491	10.0003300	11.4092791	46
15	8.5939483	9.9996650	8.5942832	11.4057168	10.0003350	11.4060517	45
16	8.5971517	9.9996601	8.5974917	11.4025083	10.0003399	11.4028483	44
17	8.6003317	9.9996550	8.6006767	11.3993233	10.0003450	11.3996683	43
18	8.6034886	9.9996500	8.6038386	11.3961614	10.0003500	11.3965114	42
19	8.6066226	9.9996449	8.6069777	11.3930223	10.0003551	11.3933774	41
20	8.6097341	9.9996398	8.6100943	11.3899057	10.0003602	11.3902659	40
21	8.6128235	9.9996346	8.6131889	11.3868111	10.0003654	11.3871765	39
22	8.6158910	9.9996294	8.6162616	11.3837384	10.0003706	11.3841090	38
23	8.6189369	9.9996242	8.6193127	11.3806873	10.0003758	11.3810631	37
24	8.6219616	9.9996189	8.6223427	11.3776573	10.0003811	11.3780384	36
25	8.6249653	9.9996136	8.6253518	11.3746482	10.0003864	11.3750347	35
26	8.6279484	9.9996082	8.6283402	11.3716598	10.0003918	11.3720516	34
27	8.6309111	9.9996028	8.6313083	11.3686917	10.0003972	11.3690889	33
28	8.6338537	9.9995974	8.6342563	11.3657437	10.0004026	11.3661463	32
29	8.6367764	9.9995919	8.6371845	11.3628155	10.0004081	11.3632236	31
30	8.6396796	9.9995865	8.6400931	11.3599069	10.0004135	11.3603204	30
31	8.6425634	9.9995809	8.6429825	11.3570175	10.0004191	11.3574366	29
32	8.6454282	9.9995753	8.6458528	11.3541472	10.0004247	11.3545718	28
33	8.6482742	9.9995697	8.6487044	11.3512956	10.0004303	11.3517258	27
34	8.6511016	9.9995641	8.6515375	11.3484625	10.0004359	11.3488984	26
35	8.6539107	9.9995584	8.6543522	11.3456478	10.0004416	11.3460893	25
36	8.6567017	9.9995527	8.6571490	11.3428510	10.0004473	11.3432983	24
37	8.6594748	9 9995469	8.6599279	11.3400721	10.0004531	11.3405252	23
38	8.6622303	9.9995411	8.6626891	11.3373109	10.0004589	11.3377697	22
39	8.6649684	9.9995353	8.6654331	11.3345669	10.0004647	11.3350316	21
40	8.6676893	9.9995295	8.6681598	11.3318402	10.0004705	11.3323107	20
41	8.6703932	9.9995236	8.6708697	11.3291303	10.0004764	11.3296068	19
42	8.6730804	9.9995176	8.6735628	11.3264372	10.0004824	11.3269196	18
43	8.6757510	9.9995116	8.6762393	11.3237607	10.0004884	11.3242490	17
44	8.6784052	9.9995056	8.6788996	11.3211004	10.0004944	11.3215948	16
45	8.6810433	9.9994996	8.6815437	11.3184563	10.0005004	11.3189567	15
46	8.6836654	9.9994935	8.6841719	11.3158281	10.0005065	11.3163346	14
47	8.6862718	9.9994874	8.6867844	11.3132156	10.0005126	11.3137282	13
48	8.6888625	9.9994812	8.6893813	11.3106187	10.0005188	11.3111375	12
49	8.6914379	9.9994750	8.6919629	11.3080371	10.0005250	11.3085621	11
50	8.6939980	9.9994688	8.6945292	11.3054708	10.0005312	11.3060020	10
51	8.6965431	9.9994625	8.6970806	11.3029194	10.0005375	11.3034569	9
52	8.6990734	9.9994562	8.6996172	11.3003828	10.0005438	11.3009266	8
53	8.7015889	9.9994498	8.7021390	11.2978610	10.0005502	11.2984111	7
54	8.7040899	9.9994435	8.7046465	11.2953535	10.0005565	11.2959101	6
55	8.7065766	9.9994370	8.7071395	11.2928605	10.0005630	11 2934234	5
56	8.7090490	9.9994306	8.7096185	11.2903815	10.0005694	11.2909510	4
57	8.7115075	9.9994241	8.7120834	11.2879166	10.0005759	11.2884925	3
58	8.7139520	9.9994176	8.7145345	11.2854655	10.0005824	11.2860480	2
59	8.7163829	9.9994110	8.7169719	11.2830281	10.0005890	11.2836171	1
60	8.7188002	9.9994044	8.7193958	11.2806042	10.0005956	11.2811998	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

87 Degrees.

3 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.7188002	9.9994044	8.7193958	11.2806042	10.0005956	11.2811998	60
1	8.7212040	9.9993978	8.7218063	11.2781937	10.0006022	11.2787960	59
2	8.7235946	9.9993911	8.7242035	11.2757965	10.0006089	11.2764054	58
3	8.7259721	9.9993844	8.7265877	11.2734123	10.0006156	11.2740279	57
4	8.7283366	9.9993776	8.7289589	11.2710411	10.0006224	11.2716634	56
5	8.7306882	9.9993708	8.7313174	11.2686826	10.0006292	11.2693118	55
6	8.7330272	9.9993640	8.7336631	11.2663369	10.0006360	11.2669728	54
7	8.7353535	9.9993572	8.7359964	11.2640036	10.0006428	11.2646465	53
8	8.7376675	9.9993503	8.7383172	11.2616828	10.0006497	11.2623325	52
9	8.7399691	9.9993433	8.7406258	11.2593742	10.0006567	11.2600309	51
10	8.7422586	9.9993364	8.7429222	11.257077	10.0006636	11.2577414	50
11	8.7445360	9.9993293	8.7452067	11.2547933	10.0006707	11.2554640	49
12	8.7468015	9.9993223	8.7474792	11.2525208	10.0006777	11.2531985	48
13	8.7490553	9.9993152	8.7497400	11.2502600	10.0006848	11.2509447	47
14	8.7512973	9.9993081	8.7519892	11.2480108	10.0006919	11.2487027	46
15	8.7535278	9.9993009	8.7542269	11.2457731	10.0006991	11.2464722	45
16	8.7557469	9.9992938	8.7564531	11.2435469	10.0007062	11.2442531	44
17	8.7579546	9.9992865	8.7586681	11.2413319	10.0007135	11.2420454	43
18	8.7601512	9.9992793	8.7608719	11.2391281	10.0007207	11.2398488	42
19	8.7623366	9.9992720	8.7630647	11.2369353	10.0007280	11.2376634	41
20	8.7645111	9.9992646	8.7652465	11.2347535	10.0007354	11.2354889	40
21	8.7666747	9.9992572	8.7674175	11.2325825	10.0007428	11.2333253	39
22	8.7688275	9.9992498	8.7695777	11.2304223	10.0007502	11.2311725	38
23	8.7709697	9.9992424	8.7717274	11.2282726	10.0007576	11.2290303	37
24	8.7731014	9.9992349	8.7738665	11.2261335	10.0007651	11.2268986	36
25	8.7752226	9.9992274	8.7759952	11.2240048	10.0007726	11.2247774	35
26	8.7773334	9.9992198	8.7781136	11.2218864	10.0007802	11.2226666	34
27	8.7794340	9.9992122	8.7802218	11.2197782	10.0007878	11.2205660	33
28	8.7815244	9.9992046	8.7823199	11.2176801	10.0007954	11.2184756	32
29	8.7836048	9.9991969	8.7844079	11.2155921	10.0008031	11.2163952	31
30	8.7856753	9.9991892	8.7864861	11.2135139	10.0008108	11.2143247	30
31	8.7877359	9.9991815	8.7885544	11.2114456	10.0008185	11.2122641	29
32	8.7897867	9.9991737	8.7906130	11.2093870	10.0008263	11.2102133	28
33	8.7918278	9.9991659	8.7926620	11.2073380	10.0008341	11.2081722	27
34	8.7938594	9.9991580	8.7947014	11.2052986	10.0008420	11.2061406	26
35	8.7958814	9.9991501	8.7967313	11.2032687	10.0008499	11.2041186	25
36	8.7978941	9.9991422	8.7987519	11.2012481	10.0008578	11.2021059	24
37	8.7998974	9.9991342	8.8007632	11.1992368	10.0008658	11.2001026	23
38	8.8018915	9.9991262	8.8027653	11.1972347	10.0008738	11.1981085	22
39	8.8038764	9.9991182	8.8047583	11.1952417	10.0008818	11.1961236	21
40	8.8058523	9.9991101	8.8067422	11.1932578	10.0008899	11.1941477	20
41	8.8078192	9.9991020	8.8087172	11.1912828	10.0008980	11.1921808	19
42	8.8097772	9.9990938	8.8106834	11.1893166	10.0009062	11.1902228	18
43	8.8117264	9.9990856	8.8126407	11.1873593	10.0009144	11.1882736	17
44	8.8136668	9.9990774	8.8145894	11.1854106	10.0009226	11.1863332	16
45	8.8155985	9.9990691	8.8165294	11.1834706	10.0009309	11.1844015	15
46	8.8175217	9.9990608	8.8184608	11.1815392	10.0009392	11.1824783	14
47	8.8194363	9.9990525	8.8203838	11.1796162	10.0009475	11.1805637	13
48	8.8213425	9.9990441	8.8222982	11.1777016	10.0009559	11.1786575	12
49	8.8232401	9.9990357	8.8242046	11.1757954	10.0009643	11.1767596	11
50	8.8251299	9.9990273	8.8261026	11.1738974	10.0009727	11.1748701	10
51	8.8270112	9.9990188	8.8279924	11.1720076	10.0009812	11.1729888	9
52	8.8288842	9.9990103	8.8298741	11.1701259	10.0009897	11.1711156	8
53	8.8307495	9.9990017	8.8317478	11.1682522	10.0009983	11.1692505	7
54	8.8326066	9.9989931	8.8336134	11.1663866	10.0010069	11.1673934	6
55	8.8344557	9.9989845	8.8354712	11.1645288	10.0010155	11.1655443	5
56	8.8362969	9.9989758	8.8373211	11.1626789	10.0010242	11.1637031	4
57	8.8381304	9.9989671	8.8391633	11.1608367	10.0010329	11.1618696	3
58	8.8399561	9.9989584	8.8409977	11.1590023	10.0010416	11.1600439	2
59	8.8417741	9.9989496	8.8428245	11.1571755	10.0010504	11.1582259	1
60	8.8435845	9.9989408	8.8446437	11.1553563	10.0010592	11.1564155	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

2 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.5428192	9.9997354	8.5430838	11.4569162	10.0002646	11.4571808	60
1	8.5464218	9.9997309	8.5466909	11.4533091	10.0002691	11.4535782	59
2	8.5499948	9.9997265	8.5502683	11.4497317	10.0002735	11.4500052	58
3	8.5535386	9.9997220	8.5538166	11.4461834	10.0002780	11.4464614	57
4	8.5570536	9.9997174	8.5573362	11.4426638	10.0002826	11.4429464	56
5	8.5605404	9.9997128	8.5608276	11.4391724	10.0002872	11.4394596	55
6	8.5639994	9.9997082	8.5642912	11.4357088	10.0002918	11.4360006	54
7	8.5674310	9.9997036	8.5677275	11.4322725	10.0002964	11.4325690	53
8	8.5708357	9.9996989	8.5711368	11.4288632	10.0003011	11.4291643	52
9	8.5742139	9.9996942	8.5745197	11.4254803	10.0003058	11.4257861	51
10	8.5775660	9.9996894	8.5778766	11.4221234	10.0003106	11.4224340	50
11	8.5808923	9.9996846	8.5812077	11.4187923	10.0003154	11.4191077	49
12	8.5841933	9.9996798	8.5845136	11.4154864	10.0003202	11.4158067	48
13	8.5874694	9.9996749	8.5877945	11.4122055	10.0003251	11.4125306	47
14	8.5907209	9.9996700	8.5910509	11.4089491	10.0003300	11.4092791	46
15	8.5939483	9.9996650	8.5942832	11.4057168	10.0003350	11.4060517	45
16	8.5971517	9.9996601	8.5974917	11.4025083	10.0003399	11.4028483	44
17	8.6003317	9.9996550	8.6006767	11.3993233	10.0003450	11.3996683	43
18	8.6034886	9.9996500	8.6038386	11.3961614	10.0003500	11.3965114	42
19	8.6066226	9.9996449	8.6069777	11.3930223	10.0003551	11.3933774	42
20	8.6097341	9.9996398	8.6100943	11.3899057	10.0003602	11.3902659	40
21	8.6128235	9.9996346	8.6131889	11.3868111	10.0003654	11.3871765	39
22	8.6158910	9.9996294	8.6162616	11.3837384	10.0003706	11.3841090	38
23	8.6189369	9.9996242	8.6193127	11.3806873	10.0003758	11.3810631	37
24	8.6219616	9.9996189	8.6223427	11.3776573	10.0003811	11.3780384	36
25	8.6249653	9.9996136	8.6253518	11.3746482	10.0003864	11.3750347	35
26	8.6279484	9.9996082	8.6283402	11.3716598	10.0003918	11.3720516	34
27	8.6309111	9.9996028	8.6313083	11.3686917	10.0003972	11.3690889	33
28	8.6338537	9.9995974	8.6342563	11.3657437	10.0004026	11.3661463	32
29	8.6367764	9.9995919	8.6371845	11.3628155	10.0004081	11.3632236	31
30	8.6396796	9.9995865	8.6400931	11.3599069	10.0004135	11.3603204	30
31	8.6425634	9.9995809	8.6429825	11.3570175	10.0004191	11.3574366	29
32	8.6454282	9.9995753	8.6458528	11.3541472	10.0004247	11.3545718	28
33	8.6482742	9.9995697	8.6487044	11.3512956	10.0004303	11.3517258	27
34	8.6511016	9.9995641	8.6515375	11.3484625	10.0004359	11.3488984	26
35	8.6539107	9.9995584	8.6543522	11.3456478	10.0004416	11.3460893	25
36	8.6567017	9.9995527	8.6571490	11.3428510	10.0004473	11.3432983	24
37	8.6594748	9.9995469	8.6599279	11.3400721	10.0004531	11.3405252	23
38	8.6622303	9.9995411	8.6626891	11.3373109	10.0004589	11.3377697	22
39	8.6649684	9.9995353	8.6654331	11.3345669	10.0004647	11.3350316	21
40	8.6676893	9.9995295	8.6681598	11.3318402	10.0004705	11.3323107	20
41	8.6703932	9.9995236	8.6708697	11.3291303	10.0004764	11.3296068	19
42	8.6730804	9.9995176	8.6735628	11.3264372	10.0004824	11.3269196	18
43	8.6757510	9.9995116	8.6762393	11.3237607	10.0004884	11.3242490	17
44	8.6784052	9.9995056	8.6788996	11.3211004	10.0004944	11.3215948	16
45	8.6810433	9.9994996	8.6815437	11.3184563	10.0005004	11.3189567	15
46	8.6836654	9.9994935	8.6841719	11.3158281	10.0005065	11.3163346	14
47	8.6862718	9.9994874	8.6867844	11.3132156	10.0005126	11.3137282	13
48	8.6888625	9.9994812	8.6893813	11.3106187	10.0005188	11.3111375	12
49	8.6914379	9.9994750	8.6919629	11.3080371	10.0005250	11.3085621	11
50	8.6939980	9.9994688	8.6945292	11.3054708	10.0005312	11.3060020	10
51	8.6965431	9.9994625	8.6970806	11.3029194	10.0005375	11.3034569	9
52	8.6990734	9.9994562	8.6996172	11.3003828	10.0005438	11.3009266	8
53	8.7015889	9.9994498	8.7021390	11.2978610	10.0005502	11.2984111	7
54	8.7040899	9.9994435	8.7046465	11.2953535	10.0005565	11.2959101	6
55	8.7065766	9.9994370	8.7071395	11.2928605	10.0005630	11.2934234	5
56	8.7090490	9.9994306	8.7096185	11.2903815	10.0005694	11.2909510	4
57	8.7115075	9.9994241	8.7120834	11.2879166	10.0005759	11.2884925	3
58	8.7139520	9.9994176	8.7145345	11.2854655	10.0005824	11.2860480	2
59	8.7163829	9.9994110	8.7169719	11.2830281	10.0005890	11.2836171	1
60	8.7188002	9.9994044	8.7193958	11.2806042	10.0005956	11.2811998	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

3 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.7188002	9.9994044	8.7193958	11.2806042	10.0005956	11.2811998	60
1	8.7212040	9.9993978	8.7218063	11.2781937	10.0006022	11.2787960	59
2	8.7235946	9.9993911	8.7242035	11.2757965	10.0006089	11.2764054	58
3	8.7259721	9.9993844	8.7265877	11.2734123	10.0006156	11.2740279	57
4	8.7283366	9.9993776	8.7289589	11.2710411	10.0006224	11.2716634	56
5	8.7306882	9.9993708	8.7313174	11.2686826	10.0006292	11.2693118	55
6	8.7330272	9.9993640	8.7336631	11.2663369	10.0006360	11.2669728	54
7	8.7353535	9.9993572	8.7359964	11.2640036	10.0006428	11.2646465	53
8	8.7376675	9.9993503	8.7383172	11.2616828	10.0006497	11.2623325	52
9	8.7399691	9.9993433	8.7406258	11.2593742	10.0006567	11.2600309	51
10	8.7422586	9.9993364	8.7429222	11.2570778	10.0006636	11.2577414	50
11	8.7445360	9.9993293	8.7452067	11.2547933	10.0006707	11.2554640	49
12	8.7468015	9.9993223	8.7474792	11.2525208	10.0006777	11.2531985	48
13	8.7490553	9.9993152	8.7497400	11.2502600	10.0006848	11.2509447	47
14	8.7512973	9.9993081	8.7519892	11.2480108	10.0006919	11.2487027	46
15	8.7535278	9.9993009	8.7542269	11.2457731	10.0006991	11.2464722	45
16	8.7557469	9.9992938	8.7564531	11.2435469	10.0007062	11.2442531	44
17	8.7579546	9.9992865	8.7586681	11.2413319	10.0007135	11.2420454	43
18	8.7601512	9.9992793	8.7608719	11.2391281	10.0007207	11.2398488	42
19	8.7623366	9.9992720	8.7630647	11.2369353	10.0007280	11.2376634	41
20	8.7645111	9.9992646	8.7652465	11.2347535	10.0007354	11.2354889	40
21	8.7666747	9.9992572	8.7674175	11.2325825	10.0007428	11.2333253	39
22	8.7688275	9.9992498	8.7695777	11.2304223	10.0007502	11.2311725	38
23	8.7709697	9.9992424	8.7717274	11.2282726	10.0007576	11.2290303	37
24	8.7731014	9.9992349	8.7738665	11.2261335	10.0007651	11.2268980	36
25	8.7752226	9.9992274	8.7759952	11.2240048	10.0007726	11.2247774	35
26	8.7773334	9.9992198	8.7781136	11.2218864	10.0007802	11.2226666	34
27	8.7794340	9.9992122	8.7802218	11.2197782	10.0007878	11.2205660	33
28	8.7815244	9.9992046	8.7823199	11.2176801	10.0007954	11.2184756	32
29	8.7836048	9.9991969	8.7844079	11.2155921	10.0008031	11.2163952	31
30	8.7856753	9.9991892	8.7864861	11.2135139	10.0008108	11.2143247	30
31	8.7877359	9.9991815	8.7885544	11.2114456	10.0008185	11.2122641	29
32	8.7897867	9.9991737	8.7906130	11.2093870	10.0008263	11.2102133	28
33	8.7918278	9.9991659	8.7926620	11.2073380	10.0008341	11.2081722	27
34	8.7938594	9.9991580	8.7947014	11.2052986	10.0008420	11.2061406	26
35	8.7958814	9.9991501	8.7967313	11.2032687	10.0008499	11.2041186	25
36	8.7978941	9.9991422	8.7987519	11.2012481	10.0008578	11.2021059	24
37	8.7998974	9.9991342	8.8007632	11.1992368	10.0008658	11.2001026	23
38	8.8018915	9.9991262	8.8027653	11.1972347	10.0008738	11.1981085	22
39	8.8038764	9.9991182	8.8047583	11.1952417	10.0008818	11.1961236	21
40	8.8058523	9.9991101	8.8067422	11.1932578	10.0008899	11.1941477	20
41	8.8078192	9.9991020	8.8087172	11.1912828	10.0008980	11.1921808	19
42	8.8097772	9.9990938	8.8106834	11.1893166	10.0009062	11.1902228	18
43	8.8117264	9.9990856	8.8126407	11.1873593	10.0009144	11.1882736	17
44	8.8136668	9.9990774	8.8145894	11.1854106	10.0009226	11.1863332	16
45	8.8155985	9.9990691	8.8165294	11.1834706	10.0009309	11.1844015	15
46	8.8175217	9.9990608	8.8184608	11.1815392	10.0009392	11.1824783	14
47	8.8194363	9.9990525	8.8203838	11.1796162	10.0009475	11.1805637	13
48	8.8213425	9.9990441	8.8222983	11.1777016	10.0009559	11.1786575	12
49	8.8232404	9.9990357	8.8242046	11.1757954	10.0009643	11.1767596	11
50	8.8251299	9.9990273	8.8261026	11.1738974	10.0009727	11.1748701	10
51	8.8270112	9.9990188	8.8279924	11.1720076	10.0009812	11.1729888	9
52	8.8288842	9.9990103	8.8298741	11.1701259	10.0009897	11.1711156	8
53	8.8307495	9.9990017	8.8317478	11.1682522	10.0009983	11.1692505	7
54	8.8326066	9.9989931	8.8336134	11.1663866	10.0010069	11.1673934	6
55	8.8344557	9.9989845	8.8354712	11.1645288	10.0010155	11.1655443	5
56	8.8362969	9.9989758	8.8373211	11.1626789	10.0010242	11.1637031	4
57	8.8381304	9.9989671	8.8391633	11.1608367	10.0010329	11.1618696	3
58	8.8399561	9.9989584	8.8409977	11.1590023	10.0010416	11.1600439	2
59	8.8417741	9.9989496	8.8428245	11.1571755	10.0010504	11.1582259	1
60	8.8435845	9.9989408	8.8446437	11.1553563	10.0010592	11.1564155	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

4 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.8435845	9.9989408	8.8446437	11.1553563	10.0010592	11.1564155	60
1	8.8453874	9.9989319	8.8464554	11.1535446	10.0010681	11.1546126	59
2	8.8471827	9.9989230	8.8482597	11.1517403	10.0010770	11.1528173	58
3	8.8489707	9.9989141	8.8500566	11.1499434	10.0010859	11.1510293	57
4	8.8507514	9.9989052	8.8518461	11.1481539	10.0010948	11.1492488	56
5	8.8525245	9.9988962	8.8536283	11.1463717	10.0011038	11.1474755	55
6	8.8542905	9.9988871	8.8554034	11.1445966	10.0011129	11.1457095	54
7	8.8560493	9.9988780	8.8571713	11.1428287	10.0011220	11.1439507	53
8	8.8578010	9.9988689	8.8589321	11.1410679	10.0011311	11.1421990	52
9	8.8595457	9.9988598	8.8606859	11.1393141	10.0011402	11.1404543	51
10	8.8612833	9.9988506	8.8624327	11.1375673	10.0011494	11.1387167	50
11	8.8630139	9.9988414	8.8641725	11.1358275	10.0011586	11.1369861	49
12	8.8647376	9.9988321	8.8659055	11.1340946	10.0011679	11.1352624	48
13	8.8664545	9.9988228	8.8676317	11.1323683	10.0011772	11.1335455	47
14	8.8681646	9.9988135	8.8693511	11.1306489	10.0011865	11.1318354	46
15	8.8698680	9.9988041	8.8710638	11.1289362	10.0011959	11.1301320	45
16	8.8715646	9.9987947	8.8727699	11.1272301	10.0012053	11.1284354	44
17	8.8732546	9.9987853	8.8744694	11.1255306	10.0012147	11.1267454	43
18	8.8749381	9.9987758	8.8761623	11.1238377	10.0012242	11.1250619	42
19	8.8766150	9.9987663	8.8778487	11.1221513	10.0012337	11.1233850	41
20	8.8782854	9.9987567	8.8795286	11.1204714	10.0012433	11.1217146	40
21	8.8799493	9.9987471	8.8812022	11.1187978	10.0012529	11.1200507	39
22	8.8816069	9.9987375	8.8828694	11.1171306	10.0012625	11.1183931	38
23	8.8832581	9.9987278	8.8845303	11.1154697	10.0012722	11.1167419	37
24	8.8849031	9.9987181	8.8861850	11.1138150	10.0012819	11.1150969	36
25	8.8865418	9.9987084	8.8878334	11.1121666	10.0012916	11.1134582	35
26	8.8881743	9.9986986	8.8894757	11.1105243	10.0013014	11.1118257	34
27	8.8898007	9.9986888	8.8911119	11.1088881	10.0013112	11.1101993	33
28	8.8914209	9.9986790	8.8927420	11.1072580	10.0013210	11.1085791	32
29	8.8930351	9.9986691	8.8943660	11.1056340	10.0013309	11.1069649	31
30	8.8946433	9.9986591	8.8959842	11.1040158	10.0013409	11.1053567	30
31	8.8962455	9.9986492	8.8975963	11.1024037	10.0013508	11.1037545	29
32	8.8978418	9.9986392	8.8992026	11.1007974	10.0013608	11.1021582	28
33	8.8994322	9.9986292	8.9008030	11.0991970	10.0013708	11.1005678	27
34	8.9010168	9.9986191	8.9023977	11.0976023	10.0013809	11.0989832	26
35	8.9025955	9.9986090	8.9039866	11.0960134	10.0013910	11.0974045	25
36	8.9041684	9.9985988	8.9055697	11.0944303	10.0014012	11.0958315	24
37	8.9057358	9.9985886	8.9071472	11.0928528	10.0014114	11.0942642	23
38	8.9072975	9.9985784	8.9087190	11.0912810	10.0014216	11.0927025	22
39	8.9088535	9.9985682	8.9102853	11.0897147	10.0014318	11.0911465	21
40	8.9104039	9.9985579	8.9118460	11.0881540	10.0014421	11.0895961	20
41	8.9119487	9.9985475	8.9134012	11.0865988	10.0014525	11.0880513	19
42	8.9134881	9.9985372	8.9149509	11.0850491	10.0014628	11.0865119	18
43	8.9150219	9.9985268	8.9164952	11.0835048	10.0014732	11.0849781	17
44	8.9165504	9.9985163	8.9180340	11.0819660	10.0014837	11.0834496	16
45	8.9180734	9.9985058	8.9195675	11.0804325	10.0014942	11.0819266	15
46	8.9195911	9.9984953	8.9210957	11.0789043	10.0015047	11.0804089	14
47	8.9211034	9.9984848	8.9226186	11.0773814	10.0015152	11.0788966	13
48	8.9226105	9.9984742	8.9241363	11.0758637	10.0015258	11.0773895	12
49	8.9241123	9.9984636	8.9256487	11.0743513	10.0015364	11.0758877	11
50	8.9256089	9.9984529	8.9271560	11.0728440	10.0015471	11.0743911	10
51	8.9271003	9.9984422	8.9286581	11.0713419	10.0015578	11.0728997	9
52	8.9285866	9.9984315	8.9301552	11.0698448	10.0015685	11.0714134	8
53	8.9300678	9.9984207	8.9316471	11.0683529	10.0015793	11.0699322	7
54	8.9315439	9.9984099	8.9331340	11.0668660	10.0015901	11.0684561	6
55	8.9330150	9.9983990	8.9346160	11.0653840	10.0016010	11.0669850	5
56	8.9344811	9.9983881	8.9360929	11.0639071	10.0016119	11.0655189	4
57	8.9359422	9.9983772	8.9375650	11.0624350	10.0016228	11.0640578	3
58	8.9373983	9.9983663	8.9390321	11.0609679	10.0016337	11.0626017	2
59	8.9388496	9.9983553	8.9404944	11.0595056	10.0016447	11.0611504	1
60	8.9402960	9.9983442	8.9419518	11.0580482	10.0016558	11.0597040	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

85 Degrees.

5 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	8.9402960	9.9983444	8.9419518	11.0580482	10.0016558	11.0597042	60
1	8.9417376	9.9983332	8.9434044	11.0565956	10.0016668	11.0582624	59
2	8.9431743	9.9983220	8.9448523	11.0551477	10.0016780	11.0568257	58
3	8.9446063	9.9983109	8.9462954	11.0537046	10.0016891	11.0553937	57
4	8.9460335	9.9982997	8.9477338	11.0522662	10.0017003	11.0539665	56
5	8.9474561	9.9982885	8.9491676	11.0508324	10.0017115	11.0525439	55
6	8.9488739	9.9982772	8.9505967	11.0494033	10.0017228	11.0511261	54
7	8.9502871	9.9982660	8.9520211	11.0479789	10.0017340	11.0497129	53
8	8.9516957	9.9982546	8.9534410	11.0465590	10.0017454	11.0483043	52
9	8.9530996	9.9982433	8.9548564	11.0451436	10.0017567	11.0469004	51
10	8.9544991	9.9982318	8.9562672	11.0437328	10.0017682	11.0455009	50
11	8.9558940	9.9982204	8.9576735	11.0423265	10.0017796	11.0441060	49
12	8.9572843	9.9982089	8.9590754	11.0409246	10.0017911	11.0427157	48
13	8.9586703	9.9981974	8.9604728	11.0395272	10.0018026	11.0413297	47
14	8.9600517	9.9981859	8.9618659	11.0381341	10.0018141	11.0399483	46
15	8.9614288	9.9981743	8.9632545	11.0367455	10.0018257	11.0385712	45
16	8.9628014	9.9981626	8.9646388	11.0353612	10.0018374	11.0371986	44
17	8.9641697	9.9981510	8.9660186	11.0339812	10.0018490	11.0358303	43
18	8.9655337	9.9981393	8.9673944	11.0326056	10.0018607	11.0344663	42
19	8.9668934	9.9981275	8.9687658	11.0312342	10.0018725	11.0331066	41
20	8.9682487	9.9981158	8.9701330	11.0298670	10.0018842	11.0317513	40
21	8.9695999	9.9981040	8.9714959	11.0285041	10.0018960	11.0304001	39
22	8.9709468	9.9980921	8.9728547	11.0271453	10.0019079	11.0290532	38
23	8.9722895	9.9980802	8.9742092	11.0257908	10.0019198	11.0277105	37
24	8.9736280	9.9980683	8.9755597	11.0244403	10.0019317	11.0263720	36
25	8.9749624	9.9980563	8.9769060	11.0230940	10.0019437	11.0250376	35
26	8.9762926	9.9980443	8.9782483	11.0217517	10.0019557	11.0237074	34
27	8.9776188	9.9980323	8.9795865	11.0204135	10.0019677	11.0223812	33
28	8.9789408	9.9980202	8.9809206	11.0190794	10.0019798	11.0210592	32
29	8.9802589	9.9980081	8.9822507	11.0177493	10.0019919	11.0197411	31
30	8.9815729	9.9979960	8.9835769	11.0164231	10.0020040	11.0184271	30
31	8.9828829	9.9979838	8.9848991	11.0151009	10.0020162	11.0171171	29
32	8.9841889	9.9979716	8.9862173	11.0137827	10.0020284	11.0158111	28
33	8.9854910	9.9979593	8.9875317	11.0124683	10.0020407	11.0145090	27
34	8.9867891	9.9979470	8.9888421	11.0111579	10.0020530	11.0132109	26
35	8.9880834	9.9979347	8.9901487	11.0098513	10.0020653	11.0119166	25
36	8.9893737	9.9979223	8.9914514	11.0085486	10.0020777	11.0106263	24
37	8.9906602	9.9979099	8.9927503	11.0072497	10.0020901	11.0093398	23
38	8.9919429	9.9978975	8.9940454	11.0059546	10.0021025	11.0080571	22
39	8.9932217	9.9978850	8.9953367	11.0046633	10.0021150	11.0067783	21
40	8.9944968	9.9978725	8.9966243	11.0033757	10.0021275	11.0055032	20
41	8.9957681	9.9978599	8.9979081	11.0020919	10.0021401	11.0042319	19
42	8.9970356	9.9978473	8.9991883	11.0008117	10.0021527	11.0029644	18
43	8.9982994	9.9978347	9.0004647	10.9995353	10.0021653	11.0017006	17
44	8.9995595	9.9978220	9.0017375	10.9982625	10.0021780	11.0004405	16
45	9.0008160	9.9978093	9.0030066	10.9969934	10.0021907	10.9991840	15
46	9.0020687	9.9977966	9.0042721	10.9957279	10.0022034	10.9979313	14
47	9.0033179	9.9977838	9.0055340	10.9944660	10.0022162	10.9966821	13
48	9.0045634	9.9977710	9.0067924	10.9932076	10.0022290	10.9954366	12
49	9.0058053	9.9977582	9.0080471	10.9919529	10.0022418	10.9941947	11
50	9.0070436	9.9977453	9.0092984	10.9907016	10.0022547	10.9929564	10
51	9.0082784	9.9977323	9.0105461	10.9894539	10.0022677	10.9917216	9
52	9.0095096	9.9977194	9.0117903	10.9882097	10.0022806	10.9904904	8
53	9.0107374	9.9977064	9.0130310	10.9869690	10.0022936	10.9892626	7
54	9.0119616	9.9976933	9.0142682	10.9857318	10.0023067	10.9880384	6
55	9.0131823	9.9976803	9.0155021	10.9844979	10.0023197	10.9868177	5
56	9.0143996	9.9976672	9.0167325	10.9832675	10.0023328	10.9856004	4
57	9.0156135	9.9976540	9.0179594	10.9820406	10.0023460	10.9843865	3
58	9.0168239	9.9976408	9.0191831	10.9808169	10.0023592	10.9831761	2
59	9.0180309	9.9976276	9.0204033	10.9795967	10.0023724	10.9819691	1
60	9.0192346	9.9976143	9.0216201	10.9783799	10.0023857	10.9807654	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant	M

6 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.0192346	9.9976143	9.0216302	10.9783748	10.0023857	10.9807654	60
1	9.0204348	9.9976011	9.0228338	10.9771662	10.0023989	10.9795652	59
2	9.0216318	9.9975877	9.0240441	10 9759559	10.0024123	10.9783682	58
3	9.0228254	9.9975743	9.0252510	10.9747490	10.0024257	10.9771746	57
4	9.0240157	9.9975609	9.0264548	10.9735452	10.0024391	10.9759843	56
5	9.0252027	9.9975475	9.0276552	10.9723448	10.0024525	10.9747973	55
6	9.0263865	9.9975340	9.0288524	10.9711476	10.0024660	10.9736135	54
7	9.0275669	9.9975205	9.0300464	10.9699536	10.0024795	10.9724331	53
8	9.0287442	9.9975069	9.0312373	10.9687627	10.0024931	10.9712558	52
9	9.0299182	9.9974933	9.0324249	10.9675751	10.0025067	10.9700818	51
10	9.0310890	9.9974797	9.0336093	10.9663907	10 0025203	10.9689110	50
11	9.0322567	9.9974660	9.0347906	10.9652094	10.0025340	10.9677433	49
12	9.0334212	9.9974523	9.0359688	10.9640312	10.0025477	10.9665788	48
13	9.0345825	9.9974386	9.0371439	10.9628561	10.0025614	10.9654175	47
14	9.0357407	9.9974248	9.0383159	10.9616841	10.0025752	10.9642593	46
15	9.0368958	9.9974110	9.0394848	10.9605152	10.0025890	10.9631042	45
16	9.0380477	9.9973971	9.0406506	10.9593494	10.0026029	10.9619523	44
17	9.0391966	9.9973833	9.0418134	10.9581866	10.0026167	10.9608034	43
18	9.0403424	9.9973693	9.0429731	10.9570269	10,0026307	10.9596576	42
19	9.0414852	9.9973554	9.0441299	10.9558701	10.0026446	10.9585148	41
20	9.0426249	9.9973414	9.0452836	10.9547164	10.0026586	10.9573751	40
21	9.0437617	9.9973273	9.0464343	10.9535657	10.0026727	10.9562383	39
22	9.0448954	9.9973132	9.0475821	10.9524179	10.0026868	10.9551046	38
23	9.0460261	9.9972991	9.0487270	10.9512730	10.0027009	10.9539739	37
24	9.0471538	9.9972850	9.0498689	10.9501311	10.0027150	10.9528462	36
25	9.0482786	9.9972708	9.0510078	10.9489922	10.0027292	10.9517214	35
26	9.0494005	9.9972566	9.0521439	10.9478561	10.0027434	10.9505995	34
27	9.0505194	9.9972423	9.0532771	10.9467229	10.0027577	10.9494806	33
28	9.0516354	9.9972280	9.0544074	10.9455926	10.0027720	10.9483646	32
29	9.0527485	9.9972137	9.0555349	10.9444651	10.0027863	10.9472515	31
30	9.0538588	9.9971993	9.0566595	10.9433405	10.0028007	10.9461412	30
31	9.0549661	9.9971849	9.0577813	10.9422187	10.0028151	10.9450339	29
32	9.0560706	9.9971704	9.0589002	10.9410998	10.0028296	10.9439294	28
33	9.0571723	9.9971559	9.0600164	10.9399836	10.0028441	10.9428277	27
34	9.0582711	9.9971414	9.0611297	10.9388703	10.0028586	10.9417289	26
35	9.0593672	9.9971268	9.0622403	10.9377597	10.0028732	10.9406328	25
36	9.0604604	9.9971122	9.0633482	10.9366518	10.0028878	10.9395396	24
37	9.0615509	9.9970976	9.0644533	10.9355467	10.0129024	10.9384491	23
38	9.0626386	9.9970829	9.0655556	10.9344444	10.0029171	10.9373614	22
39	9.0637235	9.9970682	9.0666553	10.9333447	10.0029318	10.9362765	21
40	9.0648057	9.9970535	9.0677522	10.9322478	10.0029465	10.9351943	20
41	9.0658852	9.9970387	9.0688465	10.9311535	10.0029613	10.9341148	19
42	9.0669619	9.9970239	9.0699381	10.9300619	10.0029761	10.9330381	18
43	9.0680360	9.9970090	9.0710270	10.9289730	10.0029910	10.9319640	17
44	9.0691074	9.9969941	9.0721133	10.9278867	10.0030059	10.9308926	16
45	9.0701761	9.9969792	9.0731969	10.9268031	10.0030208	10.9298239	15
46	9.0712421	9.9969642	9.0742779	10.9257221	10.0030358	10.9287579	14
47	9.0723055	9.9969492	9.0753563	10.9246437	10.0030508	10.9276945	13
48	9.0733663	9.9969342	9.0764321	10.9235679	10.0030658	10.9266337	12
49	9.0744244	9.9969191	9.0775053	10.9224947	10.0030809	10.9255756	11
50	9.0754799	9.9969040	9.0785760	10.9214240	10.0030960	10.9245201	10
51	9.0765330	9.9968888	9.0796441	10.9203559	10.0031112	10.9234671	9
52	9.0775832	9.9968736	9.0807096	10.9192904	10.0031264	10.9224168	8
53	9.0786310	9.9968584	9.0817726	10.9182274	10.0031416	10.9213690	7
54	9.0796762	9.9968431	9.0828331	10.9171669	10.0031569	10.9203238	6
55	9.0807189	9.9968278	9.0838911	10.9161089	10.0031722	10.9192811	5
56	9.0817590	9.9968125	9.0849466	10.9150534	10.0031875	10.9182410	4
57	9.0827966	9.9967971	9.0859996	10.9140004	10.0032029	10.9172034	3
58	9.0838317	9.9967817	9.0870501	10.9129499	10.0032183	10.9161683	2
59	9.0848643	9.9967662	9.0880981	10.9119019	10.0032338	10.9151357	1
60	9.0858945	9.9967507	9.0891438	10.9108562	10.0032493	10.9141055	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

7 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.0858945	9.9967507	9.0891438	10.9108562	10.0032493	10.9141055	60
1	9.0869221	9.9967352	9.0901869	10.9098131	10.0032648	10.9130779	59
2	9.0879473	9.9967196	9.0912277	10.9087723	10.0032804	10.9120527	58
3	9.0889700	9.9967040	9.0922660	10.9077340	10.0032960	10.9110300	57
4	9.0899903	9.9966884	9.0933020	10.9066980	10.0033116	10.9100097	56
5	9.0910082	9.9966727	9.0943355	10.9056645	10.0033273	10.9089918	55
6	9.0920237	9.9966570	9.0953667	10.9046333	10.0033430	10.9079763	54
7	9.0930367	9.9966412	9.0963955	10.9036045	10.0033588	10.9069633	53
8	9.0940474	9.9966254	9.0974219	10.9025781	10.0033746	10.9059526	52
9	9.0950556	9.9966096	9.0984460	10.9015540	10.0033904	10.9049444	51
10	9.0960615	9.9965937	9.0994678	10.9005322	10.0034063	10.9039385	50
11	9.0970651	9.9965778	9.1004872	10.8995128	10.0034222	10.9029349	49
12	9.0980662	9.9965619	9.1015044	10.8984956	10.0034381	10.9019338	48
13	9.0990651	9.9965459	9.1025192	10.8974808	10.0034541	10.9009349	47
14	9.1000616	9.9965299	9.1035317	10.8964683	10.0034701	10.8999384	46
15	9.1010558	9.9965138	9.1045420	10.8954580	10.0034862	10.8989442	45
16	9.1020477	9.9964977	9.1055500	10.8944500	10.0035023	10.8979523	44
17	9.1030373	9.9964816	9.1065557	10.8934443	10.0035184	10.8969627	43
18	9.1040246	9.9964655	9.1075591	10.8924409	10.0035345	10.8959754	42
19	9.1050096	9.9964493	9.1085604	10.8914396	10.0035507	10.8949904	41
20	9.1059924	9.9964330	9.1095594	10.8904406	10.0035670	10.8940076	40
21	9.1069729	9.9964167	9.1105562	10.8894438	10.0035833	10.8930271	39
22	9.1079512	9.9964004	9.1115508	10.8884492	10.0035996	10.8920488	38
23	9.1089272	9.9963841	9.1125431	10.8874569	10.0036159	10.8910728	37
24	9.1099010	9.9963677	9.1135335	10.8864667	10.0036323	10.8900990	36
25	9.1108726	9.9963513	9.1145213	10.8854787	10.0036487	10.8891274	35
26	9.1118420	9.9963348	9.1155072	10.8844928	10.0036652	10.8881580	34
27	9.1128092	9.9963183	9.1164909	10.8835091	10.0036817	10.8871908	33
28	9.1137742	9.9963018	9.1174724	10.8825276	10.0036982	10.8862258	32
29	9.1147370	9.9962852	9.1184518	10.8815482	10.0037148	10.8852630	31
30	9.1156977	9.9962686	9.1194291	10.8805709	10.0037314	10.8843023	30
31	9.1166562	9.9962519	9.1204043	10.8795957	10.0037481	10.8833438	29
32	9.1176125	9.9962352	9.1213773	10.8786227	10.0037648	10.8823875	28
33	9.1185667	9.9962185	9.1223482	10.8776518	10.0037815	10.8814333	27
34	9.1195188	9.9962017	9.1233171	10.8766829	10.0037983	10.8804812	26
35	9.1204688	9.9961849	9.1242839	10.8757161	10.0038151	10.8795312	25
36	9.1214167	9.9961681	9.1252486	10.8747514	10.0038319	10.8785833	24
37	9.1223624	9.9961512	9.1262112	10.8737888	10.0038486	10.8776376	23
38	9.1233061	9.9961343	9.1271718	10.8728282	10.0038657	10.8766939	22
39	9.1242477	9.9961174	9.1281303	10.8718697	10.0038826	10.8757523	21
40	9.1251872	9.9961004	9.1290868	10.8709132	10.0038996	10.8748128	20
41	9.1261246	9.9960834	9.1300413	10.8699587	10.0039166	10.8738754	19
42	9.1270600	9.9960663	9.1309937	10.8690063	10.0039337	10.8729400	18
43	9.1279934	9.9960492	9.1319442	10.8680558	10.0039508	10.8720066	17
44	9.1289247	9.9960321	9.1328926	10.8671074	10.0039679	10.8710753	16
45	9.1298539	9.9960149	9.1338391	10.8661609	10.0039851	10.8701461	15
46	9.1307812	9.9959977	9.1347835	10.8652165	10.0040023	10.8692188	14
47	9.1317064	9.9959804	9.1357260	10.8642740	10.0040196	10.8682936	13
48	9.1326297	9.9959631	9.1366665	10.8633335	10.0040369	10.8673703	12
49	9.1335509	9.9959458	9.1376051	10.8623949	10.0040542	10.8664491	11
50	9.1344702	9.9959284	9.1385417	10.8614583	10.0040716	10.8655298	10
51	9.1353875	9.9959111	9.1394764	10.8605236	10.0040889	10.8646125	9
52	9.1363028	9.9958936	9.1404092	10.8595908	10.0041064	10.8636972	8
53	9.1372161	9.9958761	9.1413400	10.8586600	10.0041239	10.8627839	7
54	9.1381275	9.9958586	9.1422689	10.8577311	10.0051414	10.8618725	6
55	9.1390370	9.9958411	9.1431959	10.8568041	10.0041589	10.8609630	5
56	9.1399445	9.9958235	9.1441210	10.8558790	10.0041765	10.8600555	4
57	9.1408501	9.9958059	9.1450442	10.8549558	10.0041941	10.8591499	3
58	9.1417537	9.9957882	9.1459655	10.8540345	10.0042118	10.8582463	2
59	9.1426553	9.9957705	9.1468849	10.8531151	10.0042295	10.8573445	1
60	9.1435553	9.9957528	9.1478025	10.8521975	10.0042472	10.8564447	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

A Table of Logarithmic

8 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.1435553	9.9957528	9.1478025	10.8521975	10.0042472	10.8564447	60
1	9.1444532	9.9957350	9.1487182	10.8512818	10.0042650	10.8555468	59
2	9.1453493	9.9957172	9.1496321	10.8503679	10.0042828	10.8546507	58
3	9.1462435	9.9956993	9.1505441	10.8494559	10.0043007	10.8537565	57
4	9.1471358	9.9956815	9.1514543	10.8485457	10.0043185	10.8528642	56
5	9.1480262	9.9956635	9.1523627	10.8476373	10.0043365	10.8519738	55
6	9.1489148	9.9956456	9.1532692	10.8467308	10.0043544	10.8510852	54
7	9.1498015	9.9956276	9.1541739	10.8458261	10.0043724	10.8501985	53
8	9.1506864	9.9956095	9.1550769	10.8449231	10.0043905	10.8493136	52
9	9.1515694	9.9955915	9.1559780	10.8440220	10.0044085	10.8484306	51
10	9.1524507	9.9955734	9.1568773	10.8431227	10.0044266	10.8475493	50
11	9.1533301	9.9955552	9.1577748	10.8422252	10.0044448	10.8466699	49
12	9.1542076	9.9955370	9.1586706	10.8413294	10.0044630	10.8457924	48
13	9.1550834	9.9955188	9.1595646	10.8404354	10.0044812	10.8449166	47
14	9.1559574	9.9955005	9.1604569	10.8395431	10.0044995	10.8440426	46
15	9.1568296	9.9954822	9.1613473	10.8386527	10.0045178	10.8431704	45
16	9.1577000	9.9954639	9.1622361	10.8377639	10.0045361	10.8423000	44
17	9.1585686	9.9954455	9.1631231	10.8368769	10.0045545	10.8414314	43
18	9.1594354	9.9954271	9.1640083	10.8359917	10.0045729	10.8405646	42
19	9.1603005	9.9954087	9.1648919	10.8351081	10.0045913	10.8396995	41
20	9.1611639	9.9953902	9.1657737	10.8342263	10.0046098	10.8388361	40
21	9.1620254	9.9953717	9.1666538	10.8333462	10.0046283	10.8379746	39
22	9.1628853	9.9953531	9.1675322	10.8324678	10.0046469	10.8371147	38
23	9.1637434	9.9953345	9.1684089	10.8315911	10.0046655	10.8362566	37
24	9.1645998	9.9953159	9.1692839	10.8307161	10.0046841	10.8354002	36
25	9.1654544	9.9952972	9.1701572	10.8298428	10.0047028	10.8345456	35
26	9.1663074	9.9952785	9.1710289	10.8289711	10.0047215	10.8336926	34
27	9.1671586	9.9952597	9.1718989	10.8281011	10.0047403	10.8328414	33
28	9.1680081	9.9952409	9.1727672	10.8272328	10.0047591	10.8319919	32
29	9.1688559	9.9952221	9.1736338	10.8263662	10.0047779	10.8311441	31
30	9.1697021	9.9952033	9.1744988	10.8255012	10.0047967	10.8302979	30
31	9.1705465	9.9951844	9.1753622	10.8246378	10.0048156	10.8294535	29
32	9.1713893	9.9951654	9.1762239	10.8237761	10.0048346	10.8286107	28
33	9.1722305	9.9951464	9.1770840	10.8229160	10.0048536	10.8277695	27
34	9.1730699	9.9951274	9.1779425	10.8220575	10.0048726	10.8269301	26
35	9.1739077	9.9951084	9.1787993	10.8212007	10.0048916	10.8260923	25
36	9.1747439	9.9950893	9.1796546	10.8203454	10.0049107	10.8252561	24
37	9.1755784	9.9950702	9.1805082	10.8194918	10.0049298	10.8244216	23
38	9.1764112	9.9950510	9.1813602	10.8186398	10.0049490	10.8235888	22
39	9.1772425	9.9950318	9.1822106	10.8177894	10.0049682	10.8227575	21
40	9.1780721	9.9950126	9.1830595	10.8169405	10.0049874	10.8219279	20
41	9.1789001	9.9949933	9.1839068	10.8160932	10.0050067	10.8210999	19
42	9.1797265	9.9949740	9.1847525	10.8152475	10.0050260	10.8202735	18
43	9.1805512	9.9949546	9.1855966	10.8144034	10.0050454	10.8194488	17
44	9.1813744	9.9949352	9.1864392	10.8135608	10.0050648	10.8186256	16
45	9.1821960	9.9949158	9.1872802	10.8127198	10.0050842	10.8178040	15
46	9.1830160	9.9948964	9.1881196	10.8118804	10.0051036	10.8169840	14
47	9.1838344	9.9948769	9.1889575	10.8110425	10.0051231	10.8161656	13
48	9.1846512	9.9948573	9.1897939	10.8102061	10.0051427	10.8153488	12
49	9.1854665	9.9948377	9.1906287	10.8093713	10.0051623	10.8145335	11
50	9.1862802	9.9948181	9.1914621	10.8085379	10.0051819	10.8137198	10
51	9.1870923	9.9947985	9.1922939	10.8077061	10.0052015	10.8129077	9
52	9.1879029	9.9947788	9.1931241	10.8068759	10.0052212	10.8120971	8
53	9.1887120	9.9947591	9.1939529	10.8060471	10.0052409	10.8112880	7
54	9.1895195	9.9947393	9.1947802	10.8052198	10.0052607	10.8104805	6
55	9.1903254	9.9947195	9.1956059	10.8043941	10.0052805	10.8096746	5
56	9.1911299	9.9946997	9.1964302	10.8035698	10.0053003	10.8088701	4
57	9.1919328	9.9946798	9.1972530	10.8027470	10.0053202	10.8080672	3
58	9.1927342	9.9946599	9.1980743	10.8019257	10.0053401	10.8072658	2
59	9.1935341	9.9946399	9.1988941	10.8011059	10.0053601	10.8064659	1
60	9.1943324	9.9946199	9.1997125	10.8002875	10.0053801	10.8056676	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

81 Degrees.

9 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.1943324	9.9940199	9.1997125	10.8002875	10.0053801	10.8056670	60
1	9.1951293	9.9945999	9.2005294	10.7994706	10.0054001	10.8048707	59
2	9.1959247	9.9945798	9.2013449	10 7986551	10.0054202	10.8040753	58
3	9.1967186	9.9945597	9.2021588	10.7978412	10.0054403	10.8032814	57
4	9.1975110	9.9945396	9.2029714	10.7970286	10.0054604	10.8024890	56
5	9.1983019	9.9945194	9.2037825	10.7962175	10.0054806	10.8016981	55
6	9.1990913	9.9944992	9.2045922	10.7954078	10.0055008	10.8009087	54
7	9.1998793	9.9944789	9.2054004	10.7945996	10.0055211	10.8001207	53
8	9.2006658	9.9944587	9.2062072	10.7937928	10.0055413	10.7993342	52
9	9.2014509	9.9944383	9.2070126	10.7929874	10.0055617	10.7985491	51
10	9.2022345	9.9944180	9.2078165	10.7921835	10 0055820	10.7977655	50
11	9.2030167	9.9943975	9.2086191	10.7913809	10.0056025	10.7969833	49
12	9.2037974	9.9943771	9.2094203	10.7905797	10.0056229	10.7962026	48
13	9.2045766	9.9943566	9.2102200	10.7897800	10.0056434	10.7954234	47
14	9.2053545	9.9943361	9.2110184	10.7889816	10.0056639	10.7946455	46
15	9.2061309	9.9943156	9.2118153	10.7881847	10.0056844	10.7938691	45
16	9.2069059	9.9942950	9.2126109	10.7873891	10.0057050	10.7930941	44
17	9.2076795	9.9942743	9.2134051	10.7865949	10.0057257	10.7923205	43
18	9.2084516	9.9942537	9.2141980	10.7858020	10.0057463	10.7915484	42
19	9.2092224	9.9942330	9.2149894	10.7850106	10.0057670	10.7907776	41
20	9.2099917	9.9942122	9.2157795	10.7842205	10.0057878	10.7900083	40
21	9.2107597	9.9941914	9.2165683	10.7834317	10.0058086	10.7892403	39
22	9.2115263	9.9941706	9.2173556	10.7826444	10.0058294	10.7884737	38
23	9.2122914	9.9941498	9.2181417	10.7818583	10.0058502	10.7877086	37
24	9.2130552	9.9941289	9 2189264	10.7810736	10.0058711	10.7869448	36
25	9.2138176	9.9941079	9.2197097	10.7802903	10.0058921	10.7861824	35
26	9.2145787	9.9940870	9.2204917	10.7795084	10.0059130	10.7854213	34
27	9.2153384	9.9940659	9.2212724	10.7787276	10.0059341	10.7846616	33
28	9.2160967	9.9940449	9.2220518	10.7779482	10.0059551	10.7839033	32
29	9.2168536	9.9940238	9.2228298	10.7771702	10.0059762	10.7831464	31
30	9.2176092	9.9940027	9.2236065	10.7763935	10.0059973	10.7823908	30
31	9.2183635	9.9939815	9.2243819	10.7756181	10.0060185	10.7816365	29
32	9.2191164	9.9939603	9.2251561	10.7748439	10.0060397	10.7808836	28
33	9.2198680	9.9939391	9.2259289	10.7740711	10.0060609	10.7801320	27
34	9.2206182	9.9939178	9.2267004	10.7732996	10.0060822	10.7793818	26
35	9.2213671	9.9938965	9.2274706	10.7725294	10.0061035	10.7786329	25
36	9.2221147	9.9938752	9.2282396	10.7717605	10.0061248	10.7778853	24
37	9.2228609	9.9938538	9.2290071	10.7709929	10.0061462	10.7771391	23
38	9.2236059	9.9938324	9.2297735	10.7702265	10.0061676	10.7763941	22
39	9.2243495	9.9938109	9.2305386	10.7694614	10.0061891	10.7756505	21
40	9.2250918	9.9937894	9.2313024	10.7686976	10.0062106	10.7749082	20
41	9.2258328	9.9937679	9.2320650	10.7679350	10.0062321	10.7741672	19
42	9.2265725	9.9937463	9.2328262	10.7671738	10.0062537	10.7734275	18
43	9.2273110	9.9937247	9.2335863	10.7664137	10.0062753	10.7726890	17
44	9.2280481	9.9937030	9.2343451	10.7656549	10.0062970	10.7719519	16
45	9.2287839	9.9936813	9.2351026	10.7648974	10.0063187	10.7712161	15
46	9.2295185	9.9936596	9.2358589	10.7641411	10.0063404	10.7704815	14
47	9.2302518	9.9936378	9.2366139	10.7633861	10.0063622	10.7697482	13
48	9.2309838	9.9936160	9.2373678	10.7626322	10.0063840	10.7690162	12
49	9.2317145	9.9935942	9.2381203	10.7618797	10.0064058	10.7682855	11
50	9.2324440	9.9935723	9.2388717	10.7611283	10.0064277	10.7675560	10
51	9.2331722	9.9935504	9.2396218	10.7603787	10.0064496	10.7668278	9
52	9.2338992	9.9935285	9.2403708	10.7596292	10.0064715	10.7661008	8
53	9.2346249	9.9935065	9.2411185	10.7588815	10.0064935	10.7653751	7
54	9.2353494	9.9934844	9.2418650	10.7581350	10.0065156	10.7646506	6
55	9.2360726	9.9934624	9.2426103	10.7573897	10.0065376	10.7639274	5
56	9.2367946	9.9934403	9.2433543	10.7566457	10.0065597	10.7632054	4
57	9.2375153	9.9934181	9.2440972	10.7559028	10.0065819	10.7624847	3
58	9.2382349	9.9933959	9.2448389	10.7551611	10.0066041	10.7617651	2
59	9.2389532	9.9933737	9.2455794	10.7544206	10.0066263	10.7610468	1
60	9.2396702	9.9933515	9.2463188	10.7536812	10.0066485	10.7603298	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

10 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.2396702	9.9933515	9.2463188	10.7536812	10.0066485	10.7603298	60
1	9.2403861	9.9933292	9.2470569	10.7529431	10.0066708	10.7596139	59
2	9.2411007	9.9933068	9.2477939	10.7522061	10.0066932	10.7588993	58
3	9.2418141	9.9932845	9.2485297	10.7514703	10.0067155	10.7581859	57
4	9.2425264	9.9932621	9.2492643	10.7507357	10.0067379	10.7574736	56
5	9.2432374	9.9932396	9.2499978	10.7500022	10.0067604	10.7567626	55
6	9.2439472	9.9932171	9.2507301	10.7492699	10.0067829	10.7560528	54
7	9.2446558	9.9931946	9.2514612	10.7485388	10.0068054	10.7553442	53
8	9.2453632	9.9931720	9.2521912	10.7478088	10.0068280	10.7546368	52
9	9.2460695	9.9931494	9.2529200	10.7470800	10.0068506	10.7539305	51
10	9.2467746	9.9931268	9.2536477	10.7463523	10.0068732	10.7532254	50
11	9.2474784	9.9931041	9.2543743	10.7456257	10.0068959	10.7525216	49
12	9.2481811	9.9930814	9.2550997	10.7449003	10.0069186	10.7518189	48
13	9.2488827	9.9930587	9.2558240	10.7441760	10.0069413	10.7511173	47
14	9.2495830	9.9930359	9.2565472	10.7434528	10.0069641	10.7504170	46
15	9.2502822	9.9930131	9.2572692	10.7427308	10.0069869	10.7497178	45
16	9.2509803	9.9929902	9.2579901	10.7420099	10.0070098	10.7490197	44
17	9.2516772	9.9929673	9.2587099	10.7412901	10.0070327	10.7483228	43
18	9.2523729	9.9929444	9.2594285	10.7405715	10.0070556	10.7476271	42
19	9.2530675	9.9929214	9.2601461	10.7398539	10.0070786	10.7469325	41
20	9.2537609	9.9928984	9.2608625	10.7391375	10.0071016	10.7462391	40
21	9.2544532	9.9928753	9.2615779	10.7384221	10.0071247	10.7455468	39
22	9.2551444	9.9928522	9.2622921	10.7377079	10.0071478	10.7448556	38
23	9.2558344	9.9928291	9.2630053	10.7369947	10.0071709	10.7441656	37
24	9.2565233	9.9928059	9.2637173	10.7362827	10.0071941	10.7434767	36
25	9.2572110	9.9927827	9.2644283	10.7355717	10.0072173	10.7427890	35
26	9.2578977	9.9927595	9.2651382	10.7348618	10.0072405	10.7421023	34
27	9.2585832	9.9927362	9.2658470	10.7341530	10.0072638	10.7414168	33
28	9.2592676	9.9927129	9.2665547	10.7334453	10.0072871	10.7407324	32
29	9.2599509	9.9926895	9.2672613	10.7327387	10.0073105	10.7400491	31
30	9.2606330	9.9926661	9.2679669	10.7320331	10.0073339	10.7393670	30
31	9.2613141	9.9926427	9.2686714	10.7313286	10.0073573	10.7386859	29
32	9.2619941	9.9926192	9.2693749	10.7306251	10.0073808	10.7380059	28
33	9.2626729	9.9925957	9.2700772	10.7299228	10.0074043	10.7373271	27
34	9.2633507	9.9925722	9.2707786	10.7292214	10.0074278	10.7366493	26
35	9.2640274	9.9925486	9.2714788	10.7285212	10.0074514	10.7359726	25
36	9.2647030	9.9925250	9.2721780	10.7278220	10.0074750	10.7352970	24
37	9.2653775	9.9925013	9.2728762	10.7271238	10.0074987	10.7346225	23
38	9.2660509	9.9924776	9.2735733	10.7264267	10.0075224	10.7339491	22
39	9.2667232	9.9924539	9.2742694	10.7257306	10.0075461	10.7332768	21
40	9.2673945	9.9924301	9.2749644	10.7250356	10.0075699	10.7326055	20
41	9.2680647	9.9924063	9.2756584	10.7243416	10.0075937	10.7319353	19
42	9.2687338	9.9923824	9.2763514	10.7236486	10.0076176	10.7312662	18
43	9.2694019	9.9923585	9.2770434	10.7229566	10.0076415	10.7305981	17
44	9.2700689	9.9923346	9.2777343	10.7222657	10.0076654	10.7299311	16
45	9.2707348	9.9923106	9.2784242	10.7215758	10.0076894	10.7292652	15
46	9.2713997	9.9922866	9.2791131	10.7208869	10.0077134	10.7286003	14
47	9.2720635	9.9922626	9.2798009	10.7201991	10.0077374	10.7279365	13
48	9.2727263	9.9922385	9.2804878	10.7195122	10.0077615	10.7272737	12
49	9.2733880	9.9922144	9.2811736	10.7188264	10.0077856	10.7266120	11
50	9.2740487	9.9921902	9.2818585	10.7181415	10.0078098	10.7259513	10
51	9.2747083	9.9921660	9.2825423	10.7174577	10.0078340	10.7252917	9
52	9.2753669	9.9921418	9.2832251	10.7167749	10.0078582	10.7246331	8
53	9.2760245	9.9921175	9.2839070	10.7160930	10.0078825	10.7239755	7
54	9.2766811	9.9920932	9.2845878	10.7154122	10.0079068	10.7233189	6
55	9.2773366	9.9920689	9.2852677	10.7147323	10.0079311	10.7226634	5
56	9.2779911	9.9920445	9.2859466	10.7140534	10.0079555	10.7220089	4
57	9.2786445	9.9920201	9.2866245	10.7133755	10.0079799	10.7213555	3
58	9.2792970	9.9919956	9.2873014	10.7126986	10.0080044	10.7207030	2
59	9.2799484	9.9919711	9.2879773	10.7120227	10.0080289	10.7200516	1
60	9.2805988	9.9919466	9.2886523	10.7113477	10.0080534	10.7194012	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

11 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.2805988	9.9919466	9.2886523	10.7113477	10.0080534	10.7194012	60
1	9.2812483	9.9919220	9.2893263	10.7106737	10.0080780	10.7187517	59
2	9.2818967	9.9918974	9.2899993	10.7100007	10.0081026	10.7181033	58
3	9.2825441	9.9918727	9.2906713	10.7093287	10.0081273	10.7174559	57
4	9.2831905	9.9918480	9.2913424	10.7086576	10.0081520	10.7168095	56
5	9.2838359	9.9918233	9.2920126	10.7079874	10.0081767	10.7161641	55
6	9.2844803	9.9917986	9.2926817	10.7073183	10.0082014	10.7155197	54
7	9.2851237	9.9917737	9.2933500	10.7066500	10.0082263	10.7148763	53
8	9.2857661	9.9917489	9.2940172	10.7059828	10.0082511	10.7142339	52
9	9.2864076	9.9917240	9.2946835	10.7053164	10.0082760	10.7135924	51
10	9.2870480	9.9916991	9.2953489	10.7046511	10.0083009	10.7129520	50
11	9.2876875	9.9916741	9.2960134	10.7039866	10.0083259	10.7123125	49
12	9.2883260	9.9916492	9.2966769	10.7033231	10.0083508	10.7116740	48
13	9.2889636	9.9916241	9.2973395	10.7026605	10.0083759	10.7110364	47
14	9.2896001	9.9915990	9.2980011	10.7019989	10.0084010	10.7103999	46
15	9.2902357	9.9915739	9.2986618	10.7013382	10.0084261	10.7097643	45
16	9.2908704	9.9915488	9.2993216	10.7006784	10.0084512	10.7091296	44
17	9.2915040	9.9915236	9.2999804	10.7000196	10.0084764	10.7084960	43
18	9.2921367	9.9914984	9.3006383	10.6993617	10.0085016	10.7078633	42
19	9.2927685	9.9914731	9.3012954	10.6987046	10.0085269	10.7072315	41
20	9.2933993	9.9914478	9.3019514	10.6980486	10.0085522	10.7066007	40
21	9.2940291	9.9914225	9.3026066	10.6973934	10.0085775	10.7059709	39
22	9.2946580	9.9913971	9.3032609	10.6967391	10.0086029	10.7053420	38
23	9.2952859	9.9913717	9.3039143	10.6960857	10.0086283	10.7047141	37
24	9.2959129	9.9913462	9.3045667	10.6954333	10.0086538	10.7040871	36
25	9.2965390	9.9913207	9.3052183	10.6947817	10.0086793	10.7034610	35
26	9.2971641	9.9912952	9.3058689	10.6941311	10.0087048	10.7028359	34
27	9.2977883	9.9912696	9.3065187	10.6934813	10.0087304	10.7022117	33
28	9.2984116	9.9912440	9.3071675	10.6928325	10.0087560	10.7015884	32
29	9.2990339	9.9912184	9.3078155	10.6921845	10.0087816	10.7009661	31
30	9.2996553	9.9911927	9.3084626	10.6915374	10.0088073	10.7003447	30
31	9.3002758	9.9911670	9.3091088	10.6908912	10.0088330	10.6997242	29
32	9.3008953	9.9911412	9.3097541	10.6902459	10.0088588	10.6991047	28
33	9.3015140	9.9911154	9.3103985	10.6896015	10.0088846	10.6984860	27
34	9.3021317	9.9910896	9.3110421	10.6889579	10.0089104	10.6978683	26
35	9.3027485	9.9910637	9.3116848	10.6883152	10.0089363	10.6972515	25
36	9.3033644	9.9910378	9.3123266	10.6876734	10.0089622	10.6966356	24
37	9.3039794	9.9910119	9.3129675	10.6870325	10.0089881	10.6960206	23
38	9.3045934	9.9909859	9.3136076	10.6863924	10.0090141	10.6954066	22
39	9.3052065	9.9909598	9.3142468	10.6857532	10.0090402	10.6947934	21
40	9.3058189	9.9909338	9.3148851	10.6851149	10.0090662	10.6941811	20
41	9.3064303	9.9909077	9.3155226	10.6844774	10.0090923	10.6935697	19
42	9.3070407	9.9908815	9.3161592	10.6838408	10.0091185	10.6929593	18
43	9.3076503	9.9908553	9.3167950	10.6832050	10.0091447	10.6923497	17
44	9.3082590	9.9908291	9.3174299	10.6825701	10.0091709	10.6917410	16
45	9.3088668	9.9908028	9.3180640	10.6819360	10.0091971	10.6911332	15
46	9.3094737	9.9907766	9.3186972	10.6813028	10.0092234	10.6905263	14
47	9.3100798	9.9907502	9.3193295	10.6806705	10.0092498	10.6899202	13
48	9.3106849	9.9907239	9.3199611	10.6800389	10.0092761	10.6893151	12
49	9.3112892	9.9906974	9.3205918	10.6794082	10.0093026	10.6887108	11
50	9.3118926	9.9906710	9.3212216	10.6787784	10.0093290	10.6881074	10
51	9.3124951	9.9906445	9.3218506	10.6781494	10.0093555	10.6875049	9
52	9.3130968	9.9906180	9.3224788	10.6775212	10.0093820	10.6869032	8
53	9.3136976	9.9905914	9.3231061	10.6768939	10.0094086	10.6863024	7
54	9.3142975	9.9905648	9.3237327	10.6762673	10.0094352	10.6857025	6
55	9.3148965	9.9905382	9.3243584	10.6756416	10.0094618	10.6851035	5
56	9.3154947	9.9905115	9.3249832	10.6750168	10.0094885	10.6845053	4
57	9.3160921	9.9904848	9.3256073	10.6743927	10.0095152	10.6839079	3
58	9.3166885	9.9904580	9.3262305	10.6737695	10.0095420	10.6833115	2
59	9.3172841	9.9904312	9.3268529	10.6731471	10.0095688	10.6827159	1
60	9.3178789	9.9904044	9.3274745	10.6725255	10.0095956	10.6821211	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

12 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.3178789	9.9904043	9.3274745	10.6725255	10.0095956	10.6821211	60
1	9.3184728	9.9903775	9.3280953	10.6719047	10.0096225	10.6815272	59
2	9.3190659	9.9903506	9.3287153	10.6712847	10.0096494	10.6809341	58
3	9.3196581	9.9903237	9.3293345	10.6706655	10.0096763	10.6803419	57
4	9.3202495	9.9902967	9.3299528	10.6700472	10.0097033	10.6797505	56
5	9.3208400	9.9902697	9.3305702	10.6694296	10.0097303	10.6791600	55
6	9.3214297	9.9902426	9.3311872	10.6688128	10.0097574	10.6785703	54
7	9.3220186	9.9902155	9.3318031	10.6681969	10.0097845	10.6779814	53
8	9.3226066	9.9901883	9.3324183	10.6675817	10.0098117	10.6773934	52
9	9.3231938	9.9901612	9.3330327	10.6669673	10.0098388	10.6768062	51
10	9.3237802	9.9901339	9.3336463	10.6663537	10.0098661	10.6762198	50
11	9.3243657	9.9901067	9.3342591	10.6657409	10.0098933	10.6756343	49
12	9.3249505	9.9900794	9.3348711	10.6651289	10.0099206	10.6750495	48
13	9.3255344	9.9900521	9.3354823	10.6645177	10.0099479	10.6744656	47
14	9.3261174	9.9900247	9.3360927	10.6639073	10.0099753	10.6738826	46
15	9.3266997	9.9899973	9.3367024	10.6632976	10.0100027	10.6733003	45
16	9.3272811	9.9899698	9.3373113	10.6626887	10.0100302	10.6727189	44
17	9.3278617	9.9899423	9.3379194	10.6620806	10.0100577	10.6721383	43
18	9.3284416	9.9899148	9.3385267	10.6614733	10.0100852	10.6715584	42
19	9.3290206	9.9898873	9.3391333	10.6608667	10.0101127	10.6709794	41
20	9.3295988	9.9898597	9.3397391	10.6602609	10.0101403	10.6704012	40
21	9.3301761	9.9898320	9.3403441	10.6596559	10.0101680	10.6698239	39
22	9.3307527	9.9898043	9.3409484	10.6590516	10.0101957	10.6692473	38
23	9.3313285	9.9897766	9.3415519	10.6584481	10.0102234	10.6686715	37
24	9.3319035	9.9897489	9.3421546	10.6578454	10.0102511	10.6680965	36
25	9.3324777	9.9897211	9.3427566	10.6572434	10.0102789	10.6675223	35
26	9.3330511	9.9896932	9.3433578	10.6566422	10.0103068	10.6669489	34
27	9.3336237	9.9896654	9.3439583	10.6560417	10.0103346	10.6663763	33
28	9.3341955	9.9896374	9.3445580	10.6554420	10.0103626	10.6658045	32
29	9.3347665	9.9896095	9.3451570	10.6548430	10.0103905	10.6652335	31
30	9.3353368	9.9895815	9.3457552	10.6542448	10.0104185	10.6646632	30
31	9.3359062	9.9895535	9.3463527	10.6536473	10.0104465	10.6640938	29
32	9.3364749	9.9895254	9.3469494	10.6530506	10.0104746	10.6635251	28
33	9.3370428	9.9894973	9.3475454	10.6524546	10.0105027	10.6629572	27
34	9.3376099	9.9894692	9.3481407	10.6518593	10.0105308	10.6623901	26
35	9.3381762	9.9894410	9.3487352	10.6512648	10.0105590	10.6618238	25
36	9.3387418	9.9894128	9.3493290	10.6506710	10.0105872	10.6612582	24
37	9.3393065	9.9893845	9.3499220	10.6500780	10.0106155	10.6606935	23
38	9.3398706	9.9893562	9.3505143	10.6494857	10.0106438	10.6601294	22
39	9.3404338	9.9893279	9.3511059	10.6488941	10.0106721	10.6595662	21
40	9.3409963	9.9892995	9.3516968	10.6483032	10.0107005	10.6590037	20
41	9.3415580	9.9892711	9.3522869	10.6477131	10.0107289	10.6584420	19
42	9.3421190	9.9892427	9.3528763	10.6471237	10.0107573	10.6578810	18
43	9.3426792	9.9892142	9.3534650	10.6465350	10.0107858	10.6573208	17
44	9.3432386	9.9891856	9.3540530	10.6459470	10.0108144	10.6567614	16
45	9.3437973	9.9891571	9.3546402	10.6453598	10.0108429	10.6562027	15
46	9.3443552	9.9891285	9.3552267	10.6447733	10.0108715	10.6556448	14
47	9.3449124	9.9890998	9.3558126	10.6441874	10.0109002	10.6550876	13
48	9.3454688	9.9890711	9.3563977	10.6436023	10.0109289	10.6545312	12
49	9.3460245	9.9890424	9.3569821	10.6430179	10.0109576	10.6539755	11
50	9.3465794	9.9890137	9.3575658	10.6424342	10.0109863	10.6534206	10
51	9.3471336	9.9889849	9.3581487	10.6418513	10.0110151	10.6528664	9
52	9.3476870	9.9889560	9.3587310	10.6412690	10.0110440	10.6523130	8
53	9.3482397	9.9889271	9.3593126	10.6406874	10.0110729	10.6517603	7
54	9.3487917	9.9888982	9.3598935	10.6401065	10.0111018	10.6512083	6
55	9.3493429	9.9888693	9.3604736	10.6395264	10.0111307	10.6506571	5
56	9.3498934	9.9888403	9.3610531	10.6389469	10.0111597	10.6501066	4
57	9.3504432	9.9888113	9.3616319	10.6383681	10.0111887	10.6495568	3
58	9.3509922	9.9887822	9.3622100	10.6377900	10.0112178	10.6490078	2
59	9.3515405	9.9887531	9.3627874	10.6372126	10.0112469	10.6484595	1
60	9.3520880	9.9887239	9.3633641	10.6366359	10.0112761	10.6479120	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

13 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.3520880	9.9887239	9.3633641	10.6366359	10.0112761	10.0479120	60
1	9.3526349	9.9886947	9.3639401	10.6360599	10.0113053	10.0473651	59
2	9.3531810	9.9886655	9.3645155	10.6354845	10.0113345	10.0468190	58
3	9.3537264	9.9886363	9.3650901	10.6349099	10.0113637	10.0462736	57
4	9.3542710	9.9886070	9.3656641	10.6343359	10.0113930	10.0457290	56
5	9.3548150	9.9885776	9.3662374	10.6337626	10.0114224	10.0451850	55
6	9.3553582	9.9885482	9.3668100	10.6331900	10.0114518	10.0446418	54
7	9.3559007	9.9885188	9.3673819	10.6326181	10.0114812	10.0440993	53
8	9.3564426	9.9884894	9.3679532	10.6320468	10.0115106	10.0435574	52
9	9.3569836	9.9884599	9.3685238	10.6314762	10.0115401	10.0430164	51
10	9.3575240	9.9884303	9.3690937	10.6309063	10.0115697	10.0424760	50
11	9.3580637	9.9884008	9.3696629	10.6303371	10.0115992	10.0419363	49
12	9.3586027	9.9883712	9.3702315	10.6297685	10.0116288	10.0413973	48
13	9.3591409	9.9883415	9.3707994	10.6292006	10.0116585	10.0408591	47
14	9.3596785	9.9883118	9.3713667	10.6286333	10.0116882	10.0403215	46
15	9.3602154	9.9882821	9.3719333	10.6280667	10.0117179	10.0397846	45
16	9.3607515	9.9882523	9.3724992	10.6275008	10.0117477	10.0392485	44
17	9.3612870	9.9882225	9.3730645	10.6269355	10.0117775	10.0387130	43
18	9.3618217	9.9881927	9.3736291	10.6263709	10.0118073	10.0381783	42
19	9.3623558	9.9881628	9.3741930	10.6258070	10.0118372	10.0376442	41
20	9.3628892	9.9881329	9.3747563	10.6252437	10.0118671	10.0371108	40
21	9.3634219	9.9881029	9.3753190	10.6246810	10.0118971	10.0365781	39
22	9.3639539	9.9880729	9.3758810	10.6241190	10.0119271	10.0360461	38
23	9.3644852	9.9880429	9.3764423	10.6235577	10.0119571	10.0355148	37
24	9.3650158	9.9880128	9.3770030	10.6229970	10.0119872	10.0349842	36
25	9.3655458	9.9879827	9.3775631	10.6224369	10.0120173	10.0344542	35
26	9.3660750	9.9879525	9.3781225	10.6218775	10.0120475	10.0339250	34
27	9.3666036	9.9879223	9.3786813	10.6213187	10.0120777	10.0333964	33
28	9.3671315	9.9878921	9.3792394	10.6207606	10.0121079	10.0328685	32
29	9.3676587	9.9878618	9.3797969	10.6202031	10.0121382	10.0323413	31
30	9.3681853	9.9878315	9.3803537	10.6196463	10.0121685	10.0318147	30
31	9.3687111	9.9878012	9.3809100	10.6190900	10.0121988	10.0312889	29
32	9.3692363	9.9877708	9.3814655	10.6185345	10.0122292	10.0307637	28
33	9.3697608	9.9877404	9.3820205	10.6179795	10.0122596	10.0302392	27
34	9.3702847	9.9877099	9.3825748	10.6174252	10.0122901	10.0297153	26
35	9.3708079	9.9876794	9.3831285	10.6168715	10.0123206	10.0291921	25
36	9.3713304	9.9876488	9.3836816	10.6163184	10.0123512	10.0286696	24
37	9.3718523	9.9876183	9.3842340	10.6157660	10.0123817	10.0281477	23
38	9.3723735	9.9875876	9.3847858	10.6152142	10.0124124	10.0276265	22
39	9.3728940	9.9875570	9.3853370	10.6146630	10.0124430	10.0271060	21
40	9.3734139	9.9875263	9.3858876	10.6141124	10.0124737	10.0265861	20
41	9.3739331	9.9874955	9.3864376	10.6135624	10.0125045	10.0260669	19
42	9.3744517	9.9874648	9.3869869	10.6130131	10.0125352	10.0255483	18
43	9.3749696	9.9874339	9.3875356	10.6124644	10.0125661	10.0250304	17
44	9.3754868	9.9874031	9.3880837	10.6119163	10.0125969	10.0245132	16
45	9.3760034	9.9873722	9.3886312	10.6113688	10.0126278	10.0239966	15
46	9.3765194	9.9873413	9.3891781	10.6108219	10.0126587	10.0234806	14
47	9.3770347	9.9873103	9.3897244	10.6102756	10.0126897	10.0229653	13
48	9.3775493	9.9872793	9.3902700	10.6097300	10.0127207	10.0224507	12
49	9.3780633	9.9872482	9.3908151	10.6091849	10.0127518	10.0219367	11
50	9.3785767	9.9872171	9.3913595	10.6086405	10.0127829	10.0214233	10
51	9.3790894	9.9871860	9.3919034	10.6080966	10.0128140	10.0209106	9
52	9.3796015	9.9871549	9.3924466	10.6075534	10.0128451	10.0203985	8
53	9.3801129	9.9871236	9.3929893	10.6070107	10.0128764	10.0198871	7
54	9.3806237	9.9870924	9.3935313	10.6064687	10.0129076	10.0193763	6
55	9.3811339	9.9870611	9.3940727	10.6059273	10.0129389	10.0188661	5
56	9.3816434	9.9870298	9.3946136	10.6053864	10.0129702	10.0183566	4
57	9.3821523	9.9869984	9.3951538	10.6048462	10.0130016	10.0178477	3
58	9.3826605	9.9869670	9.3956935	10.6043065	10.0130330	10.0173395	2
59	9.3831682	9.9869356	9.3962326	10.6037674	10.0130644	10.0168318	1
60	9.3836752	9.9869041	9.3967711	10.6032289	10.0130959	10.0163248	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

76 Degrees.

14 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.3836752	9.9869041	9.3967711	10.6032289	10.0130959	10.6163248	60
1	9.3841815	9.9868726	9.3973089	10.6026911	10.0131274	10.6158185	59
2	9.3846873	9.9868411	9.3978463	10.6021537	10.0131590	10.6153127	58
3	9.3851924	9.9868094	9.3983830	10.6016170	10.0131906	10.6148076	57
4	9.3856969	9.9867778	9.3989191	10.6010809	10.0132222	10.6143031	56
5	9.3862008	9.9867461	9.3994547	10.6005453	10.0132539	10.6137992	55
6	9.3867040	9.9867144	9.3999896	10.6000104	10.0132856	10.6132960	54
7	9.3872067	9.9866827	9.4005240	10.5994760	10.0133173	10.6127933	53
8	9.3877087	9.9866507	9.4010578	10.5989422	10.0133491	10.6122913	52
9	9.3882101	9.9866191	9.4015910	10.5984090	10.0133809	10.6117899	51
10	9.3887109	9.9865872	9.4021237	10.5978763	10.0134128	10.6112891	50
11	9.3892111	9.9865553	9.4026558	10.5973442	10.0134447	10.6107889	49
12	9.3897106	9.9865233	9.4031873	10.5968127	10.0134767	10.6102894	48
13	9.3902096	9.9864913	9.4037182	10.5962818	10.0135087	10.6097904	47
14	9.3907079	9.9864593	9.4042486	10.5957514	10.0135407	10.6092921	46
15	9.3912057	9.9864273	9.4047784	10.5952216	10.0135727	10.6087943	45
16	9.3917028	9.9863952	9.4053076	10.5946924	10.0136048	10.6082972	44
17	9.3921993	9.9863630	9.4058363	10.5941637	10.0136370	10.6078007	43
18	9.3926952	9.9863308	9.4063644	10.5936356	10.0136692	10.6073048	42
19	9.3931905	9.9862986	9.4068919	10.5931081	10.0137014	10.6068095	41
20	9.3936852	9.9862663	9.4074189	10.5925811	10.0137337	10.6063148	40
21	9.3941794	9.9862340	9.4079453	10.5920547	10.0137660	10.6058206	39
22	9.3946729	9.9862017	9.4084712	10.5915288	10.0137983	10.6053271	38
23	9.3951658	9.9861693	9.4089965	10.5910035	10.0138307	10.6048342	37
24	9.3956581	9.9861369	9.4095212	10.5904788	10.0138631	10.6043419	36
25	9.3961499	9.9861045	9.4100454	10.5899546	10.0138955	10.6038501	35
26	9.3966410	9.9860720	9.4105690	10.5894310	10.0139280	10.6033590	34
27	9.3971315	9.9860394	9.4110921	10.5889079	10.0139606	10.6028685	33
28	9.3976215	9.9860069	9.4116146	10.5883854	10.0139931	10.6023787	32
29	9.3981109	9.9859742	9.4121366	10.5878634	10.0140258	10.6018891	31
30	9.3985996	9.9859416	9.4126581	10.5873419	10.0140584	10.6014004	30
31	9.3990878	9.9859089	9.4131789	10.5868211	10.0140911	10.6009122	29
32	9.3995754	9.9858762	9.4136993	10.5863007	10.0141238	10.6004246	28
33	9.4000623	9.9858434	9.4142191	10.5857809	10.0141566	10.5999375	27
34	9.4005489	9.9858105	9.4147383	10.5852617	10.0141894	10.5994511	26
35	9.4010348	9.9857777	9.4152570	10.5847430	10.0142223	10.5989652	25
36	9.4015201	9.9857449	9.4157752	10.5842248	10.0142551	10.5984799	24
37	9.4020048	9.9857119	9.4162928	10.5837072	10.0142881	10.5979952	23
38	9.4024889	9.9856790	9.4168099	10.5831901	10.0143210	10.5975111	22
39	9.4029724	9.9856460	9.4173265	10.5826735	10.0143540	10.5970276	21
40	9.4034554	9.9856129	9.4178425	10.5821575	10.0143871	10.5965446	20
41	9.4039378	9.9855798	9.4183580	10.5816420	10.0144202	10.5960622	19
42	9.4044196	9.9855467	9.4188729	10.5811271	10.0144533	10.5955804	18
43	9.4049009	9.9855135	9.4193874	10.5806126	10.0144865	10.5950991	17
44	9.4053816	9.9854803	9.4199013	10.5800987	10.0145197	10.5946184	16
45	9.4058617	9.9854471	9.4204146	10.5795854	10.0145529	10.5941383	15
46	9.4063413	9.9854138	9.4209275	10.5790725	10.0145862	10.5936587	14
47	9.4068203	9.9853805	9.4214398	10.5785602	10.0146195	10.5931797	13
48	9.4072987	9.9853471	9.4219515	10.5780485	10.0146529	10.5927013	12
49	9.4077766	9.9853138	9.4224623	10.5775372	10.0146862	10.5922234	11
50	9.4082539	9.9852803	9.4229735	10.5770265	10.0147197	10.5917461	10
51	9.4087306	9.9852468	9.4234838	10.5765162	10.0147532	10.5912694	9
52	9.4092068	9.9852133	9.4239935	10.5760065	10.0147867	10.5907932	8
53	9.4096824	9.9851798	9.4245026	10.5754974	10.0148202	10.5903176	7
54	9.4101575	9.9851462	9.4250113	10.5749887	10.0148538	10.5898425	6
55	9.4106320	9.9851125	9.4255194	10.5744806	10.0148875	10.5893680	5
56	9.4111059	9.9850789	9.4260271	10.5739729	10.0149211	10.5888941	4
57	9.4115793	9.9850452	9.4265342	10.5734658	10.0149548	10.5884207	3
58	9.4120522	9.9850114	9.4270408	10.5729592	10.0149886	10.5879478	2
59	9.4125245	9.9849776	9.4275469	10.5724531	10.0150224	10.5874755	1
60	9.4129962	9.9849438	9.4280525	10.5719475	10.0150562	10.5870038	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

15 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.4129962	9.9849438	9.4280525	10.5719475	10.0150562	10.5870038	60
1	9.4134674	9.9849099	9.4285575	10.5714425	10.0150901	10.5865326	59
2	9.4139381	9.9848760	9.4290621	10.5709379	10.0151240	10.5860619	58
3	9.4144082	9.9848420	9.4295661	10.5704339	10.0151580	10.5855918	57
4	9.4148778	9.9848081	9.4300697	10.5699303	10.0151919	10.5851222	56
5	9.4153468	9.9847740	9.4305727	10.5694273	10.0152260	10.5846532	55
6	9.4158152	9.9847400	9.4310753	10.5689247	10.0152600	10.5841848	54
7	9.4162832	9.9847059	9.4315773	10.5684227	10.0152941	10.5837168	53
8	9.4167506	9.9846717	9.4320789	10.5679211	10.0153283	10.5832494	52
9	9.4172174	9.9846375	9.4325799	10.5674201	10.0153625	10.5827826	51
10	9.4176837	9.9846033	9.4330804	10.5669196	10.0153967	10.5823163	50
11	9.4181495	9.9845690	9.4335805	10.5664195	10.0154310	10.5818505	49
12	9.4186148	9.9845347	9.4340800	10.5659200	10.0154653	10.5813852	48
13	9.4190795	9.9845004	9.4345791	10.5654209	10.0154996	10.5809205	47
14	9.4195436	9.9844660	9.4350776	10.5649224	10.0155340	10.5804564	46
15	9.4200073	9.9844316	9.4355757	10.5644243	10.0155684	10.5799927	45
16	9.4204704	9.9843971	9.4360733	10.5639267	10.0156029	10.5795296	44
17	9.4209330	9.9843626	9.4365704	10.5634296	10.0156374	10.5790670	43
18	9.4213950	9.9843281	9.4370670	10.5629330	10.0156719	10.5786050	42
19	9.4218566	9.9842935	9.4375631	10.5624369	10.0157065	10.5781434	41
20	9.4223176	9.9842589	9.4380587	10.5619413	10.0157411	10.5776824	40
21	9.4227780	9.9842242	9.4385538	10.5614462	10.0157758	10.5772220	39
22	9.4232380	9.9841895	9.4390485	10.5609515	10.0158105	10.5767620	38
23	9.4236974	9.9841548	9.4395426	10.5604574	10.0158452	10.5763026	37
24	9.4241563	9.9841200	9.4400363	10.5599637	10.0158800	10.5758437	36
25	9.4246147	9.9840852	9.4405295	10.5594705	10.0159148	10.5753853	35
26	9.4250726	9.9840503	9.4410222	10.5589778	10.0159497	10.5749274	34
27	9.4255299	9.9840154	9.4415145	10.5584855	10.0159846	10 5744701	33
28	9.4259867	9.9839805	9.4420062	10.5579938	10.0160195	10.5740133	32
29	9.4264430	9.9839455	9.4424975	10.5575025	10.0160545	10.5735570	31
30	9.4268988	9.9839105	9.4429883	10.5570117	10.0160895	10.5731012	30
31	9.4273541	9.9838755	9.4434786	10.5565214	10.0161245	10.5726459	29
32	9.4278089	9.9838404	9.4439685	10.5560315	10.0161596	10.5721911	28
33	9.4282631	9.9838052	9.4444579	10.5555421	10.0161948	10.5717369	27
34	9.4287169	9.9837701	9.4449468	10.5550532	10.0162299	10.5712831	26
35	9.4291701	9.9837348	9 4454352	10.5545648	10.0162652	10.5708299	25
36	9.4296228	9.9836996	9.4459232	10.5540768	10.0163004	10.5703772	24
37	9.4300750	9.9836643	9.4464107	10.5535893	10.0163357	10.5699250	23
38	9.4305267	9.9836290	9.4468978	10.5531022	10.0163710	10.5694733	22
39	9.4309779	9.9835936	9.4473843	10.5526157	10.0164064	10.5690221	21
40	9 4314286	9.9835582	9.4478704	10.5521296	10.0164418	10.5685714	20
41	9.4318788	9.9835227	9.4483561	10.5516439	10.0164773	10.5681212	19
42	9.4323285	9.9834872	9.4488413	10.5511587	10.0165128	10.5676715	18
43	9.4327777	9.9834517	9.4493260	10.5506740	10.0165483	10.5672223	17
44	9.4332264	9.9834161	9.4498102	10.5501898	10.0165839	10.5667736	16
45	9.4336746	9.9833805	9.4502940	10.5497060	10.0166195	10.5663254	15
46	9.4341223	9.9833449	9.4507774	10.5492226	10.0166551	10.5658777	14
47	9.4345694	9.9833092	9.4512602	10.5487398	10.0166908	10.5654306	13
48	9.4350161	9.9832735	9.4517427	10.5482573	10.0167265	10.5649839	12
49	9.4354623	9.9832377	9.4522246	10.5477754	10.0167623	10.5645377	11
50	9.4359080	9.9832019	9.4527061	10.5472939	10.0167981	10.5640920	10
51	9.4363532	9.9831661	9.4531872	10.5468128	10.0168339	10.5636468	9
52	9.4367980	9.9831302	9.4536678	10.5463322	10.0168698	10 5632020	8
53	9.4372422	9.9830942	9.4541479	10.5458521	10.0169058	10.5627578	7
54	9.4376859	9.9830583	9.4546276	10.5453724	10.0169417	10.5623141	6
55	9 4381292	9.9830223	9.4551069	10.5448931	10.0169777	10.5618708	5
56	9.4385719	9.9829862	9.4555857	10.5444143	10.0170138	10.5614281	4
57	9.4390142	9.9829501	9.4560641	10.5439359	10.0170499	10.5609858	3
58	9.4394560	9.9829140	9.4565420	10.5434580	10.0170860	10.5605440	2
59	9.4398973	9.9828778	9.4570194	10.5429806	10.0171222	10.5601027	1
60	9.4403381	9.9828416	9.4574964	10.5425036	10.0171584	10.5596619	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

16 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.4403381	9.9828416	9.4574964	10.5425036	10.0171584	10.5596619	60
1	9.4417784	9.9828054	9.4579730	10.5420270	10.0171946	10.5592210	59
2	9.4432182	9.9827691	9.4584491	10.5415509	10.0172309	10 5587818	58
3	9.4446576	9.9827328	9.4589248	10.5410752	10.0172672	10.5583424	57
4	9.4460965	9.9826964	9.4594001	10.5405999	10.0173036	10.5579035	56
5	9.4475349	9.9826600	9.4598749	10.5401251	10.0173400	10.5574651	55
6	9.4489728	9.9826236	9.4603492	10.5396508	10.0173764	10.5570272	54
7	9.4504103	9.9825871	9.4608232	10.5391768	10.0174129	10.5565897	53
8	9.4518472	9.9825506	9.4612967	10.5387033	10.0174494	10.5561528	52
9	9.4532837	9.9825140	9.4617697	10.5382303	10.0174860	10.5557163	51
10	9.4547197	9.9824774	9.4622423	10.5377577	10 0175226	10.5552803	50
11	9.4561553	9.9824408	9.4627145	10.5372855	10.0175592	10.5548447	49
12	9.4575904	9.9824041	9.4631863	10.5368137	10.0175959	10.5544096	48
13	9.4590250	9.9823674	9.4636576	10.5363424	10.0176326	10.5539750	47
14	9.4604591	9.9823306	9.4641285	10.5358715	10.0176694	10.5535409	46
15	9.4618927	9.9822938	9.4645990	10.5354010	10.0177062	10.5531073	45
16	9.4633259	9.9822569	9.4650690	10.5349310	10.0177431	10.5526741	44
17	9.4647586	9.9822201	9.4655386	10.5344614	10.0177799	10.5522414	43
18	9.4661909	9.9821831	9.4660078	10.5339922	10,0178169	10.5518091	42
19	9.4676227	9.9821462	9.4664765	10.5335235	10.0178538	10.5513773	41
20	9.4690540	9.9821092	9.4669448	10.5330552	10.0178908	10.5509460	40
21	9.4704849	9.9820721	9.4674127	10.5325873	10.0179279	10.5505151	39
22	9.4719153	9.9820351	9.4678802	10.5321198	10.0179649	10.5500847	38
23	9.4733452	9.9819979	9.4683473	10.5316527	10.0180021	10.5496548	37
24	9.4747747	9.9819608	9.4688139	10.5311861	10.0180392	10.5492253	36
25	9.4762037	9.9819236	9.4692801	10.5307199	10.0180764	10.5487963	35
26	9.4776322	9.9818863	9.4697459	10.5302541	10.0181137	10.5483678	34
27	9.4790603	9.9818490	9.4702112	10.5297888	10.0181510	10.5479397	33
28	9.4804879	9.9818117	9.4706762	10.5293238	10.0181883	10.5475121	32
29	9.4819151	9.9817744	9.4711407	10.5288593	10.0182256	10.5470849	31
30	9.4833418	9.9817370	9.4716048	10.5283952	10.0182630	10.5466582	30
31	9.4847681	9.9816995	9.4720685	10.5279315	10.0183005	10.5462319	29
32	9.4861939	9.9816620	9.4725318	10.5274682	10.0183380	10.5458061	28
33	9.4876192	9.9816245	9.4729947	10.5270053	10.0183755	10.5453808	27
34	9.4890441	9.9815870	9.4734572	10.5265428	10.0184130	10.5449559	26
35	9.4904686	9.9815494	9.4739192	10.5260808	10.0184506	10.5445314	25
36	9.4918926	9.9815117	9.4743808	10.5256192	10.0184883	10.5441074	24
37	9.4933161	9.9814740	9.4748421	10.5251579	10.0185260	10.5436839	23
38	9.4947392	9.9814363	9.4753029	10.5246971	10.0185637	10.5432608	22
39	9.4961618	9.9813986	9.4757633	10.5242367	10.0186014	10.5428382	21
40	9.4975840	9.9813608	9.4762233	10.5237767	10.0186392	10.5424160	20
41	9.4990058	9.9813229	9.4766829	10.5233171	10.0186771	10.5419942	19
42	9.5004271	9.9812850	9.4771421	10.5228579	10.0187150	10.5415729	18
43	9.5018480	9.9812471	9.4776009	10.5223991	10.0187529	10.5411520	17
44	9.5032684	9.9812091	9.4780592	10.5219408	10.0187909	10.5407316	16
45	9.5046884	9.9811711	9.4785172	10.5214828	10.0188289	10.5403116	15
46	9.5061079	9.9811331	9.4789748	10.5210252	10.0188669	10.5398921	14
47	9.5075270	9.9810950	9.4794319	10.5205681	10.0189050	10.5394730	13
48	9.5089456	9.9810569	9.4798887	10.5201113	10.0189431	10.5390544	12
49	9.5103638	9.9810187	9.4803451	10.5196549	10.0189813	10.5386362	11
50	9.5117816	9.9809805	9.4808011	10.5191989	10.0190195	10.5382184	10
51	9.5131989	9.9809423	9.4812566	10.5187434	10.0190577	10.5378011	9
52	9.5146158	9.9809040	9.4817118	10.5182882	10.0190960	10.5373842	8
53	9.5160323	9.9808657	9.4821666	10.5178334	10.0191343	10.5369677	7
54	9.5174483	9.9808273	9.4826210	10.5173790	10.0191727	10.5365517	6
55	9.5188639	9.9807889	9.4830750	10.5169250	10.0192111	10.5361361	5
56	9.5202790	9.9807505	9.4835286	10.5164714	10.0192495	10.5357210	4
57	9.5216938	9.9807120	9.4839818	10.5160182	10.0192880	10.5353062	3
58	9.5231081	9.9806735	9.4844346	10.5155654	10.0193265	10.5348919	2
59	9.5245219	9.9806349	9.4848870	10.5151130	10.0193651	10.5344781	1
60	9.5259353	9.9805963	9.4853390	10.5146610	10.0194037	10.5340647	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

73 Degrees.

17 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang	Secant.	Co-fecant	M
0	9.4659353	9.9805963	9.4853390	10.5146610	10.0194037	10.5340647	60
1	9.4663483	9.9805577	9.4857907	10.5142093	10.0194423	10.5336517	59
2	9.4667609	9.9805190	9.4862419	10.5137581	10.0194810	10.5332391	58
3	9.4671730	9.9804803	9.4866928	10.5133072	10.0195197	10.5328270	57
4	9.4675848	9.9804415	9.4871433	10.5128567	10.0195585	10.5324152	56
5	9.4679960	9.9804027	9.4875933	10.5124067	10.0195973	10.5320040	55
6	9.4684069	9.9803639	9.4880430	10.5119570	10.0196361	10.5315931	54
7	9.4688173	9.9803250	9.4884924	10.5115076	10.0196750	10.5311827	53
8	9.4692273	9.9802860	9.4889413	10.5110587	10.0197140	10.5307727	52
9	9.4696369	9.9802471	9.4893898	10.5106102	10.0197529	10.5303631	51
10	9.4700461	9.9802081	9.4898380	10.5101620	10.0197919	10.5299539	50
11	9.4704548	9.9801690	9.4902858	10.5097142	10.0198310	10.5295452	49
12	9.4708631	9.9801299	9.4907332	10.5092668	10.0198701	10.5291369	48
13	9.4712710	9.9800908	9.4911802	10.5088198	10.0199092	10.5287290	47
14	9.4716785	9.9800516	9.4916269	10.5083731	10.0199484	10.5283215	46
15	9.4720856	9.9800124	9.4920731	10.5079269	10.0199876	10.5279144	45
16	9.4724922	9.9799732	9.4925190	10.5074810	10.0200268	10.5275078	44
17	9.4728985	9.9799339	9.4929646	10.5070354	10.0200661	10.5271015	43
18	9.4733043	9.9798946	9.4934097	10.5065903	10.0201054	10.5266957	42
19	9.4737097	9.9798552	9.4938545	10.5061455	10.0201448	10.5262903	41
20	9.4741146	9.9798158	9.4942988	10.5057012	10.0201842	10.5258854	40
21	9.4745192	9.9797764	9.4947429	10.5052571	10.0202236	10.5254808	39
22	9.4749234	9.9797369	9.4951865	10.5048135	10.0202631	10.5250766	38
23	9.4753271	9.9796973	9.4956298	10.5043702	10.0203027	10.5246729	37
24	9.4757304	9.9796578	9.4960727	10.5039273	10.0203422	10.5242696	36
25	9.4761334	9.9796182	9.4965152	10.5034846	10.0203818	10.5238666	35
26	9.4765359	9.9795785	9.4969574	10.5030426	10.0204215	10.5234641	34
27	9.4769380	9.9795388	9.4973991	10.5026009	10.0204612	10.5230620	33
28	9.4773396	9.9794991	9.4978406	10.5021594	10.0205009	10.5226604	32
29	9.4777409	9.9794593	9.4982816	10.5017184	10.0205407	10.5222591	31
30	9.4781418	9.9794195	9.4987223	10.5012777	10.0205805	10.5218582	30
31	9.4785422	9.9793796	9.4991626	10.5008374	10.0206204	10.5214577	29
32	9.4789423	9.9793398	9.4996026	10.5003974	10.0206602	10.5210577	28
33	9.4793420	9.9792998	9.5000422	10.4999578	10.0207002	10.5206580	27
34	9.4797412	9.9792599	9.5004814	10.4995186	10.0207401	10.5202588	26
35	9.4801401	9.9792198	9.5009203	10.4990797	10.0207802	10.5198599	25
36	9.4805385	9.9791798	9.5013588	10.4986412	10.0208202	10.5194615	24
37	9.4809366	9.9791397	9.5017969	10.4982031	10.0208603	10.5190634	23
38	9.4813342	9.9790996	9.5022347	10.4977653	10.0209004	10.5186658	22
39	9.4817315	9.9790594	9.5026721	10.4973279	10.0209406	10.5182685	21
40	9.4821283	9.9790192	9.5031092	10.4968908	10.0209808	10.5178717	20
41	9.4825248	9.9789789	9.5035459	10.4964541	10.0210211	10.5174752	19
42	9.4829208	9.9789386	9.5039822	10.4960178	10.0210614	10.5170792	18
43	9.4833165	9.9788983	9.5044181	10.4955818	10.0211017	10.5166835	17
44	9.4837117	9.9788579	9.5048538	10.4951462	10.0211421	10.5162883	16
45	9.4841066	9.9788175	9.5052891	10.4947109	10.0211825	10.5158934	15
46	9.4845010	9.9787770	9.5057240	10.4942760	10.0212230	10.5154990	14
47	9.4848951	9.9787365	9.5061586	10.4938414	10.0212635	10.5151049	13
48	9.4852888	9.9786960	9.5065928	10.4934072	10.0213040	10.5147112	12
49	9.4856820	9.9786554	9.5070267	10.4929733	10.0213446	10.5143180	11
50	9.4860749	9.9786148	9.5074602	10.4925398	10.0213852	10.5139251	10
51	9.4864674	9.9785741	9.5078933	10.4921067	10.0214259	10.5135326	9
52	9.4868595	9.9785334	9.5083261	10.4916739	10.0214666	10.5131405	8
53	9.4872512	9.9784927	9.5087586	10.4912414	10.0215073	10.5127488	7
54	9.4876426	9.9784519	9.5091907	10.4908093	10.0215481	10.5123574	6
55	9.4880335	9.9784112	9.5096224	10.4903776	10.0215889	10.5119665	5
56	9.4884241	9.9783702	9.5100539	10.4899461	10.0216298	10.5115760	4
57	9.4888142	9.9783293	9.5104849	10.4895151	10.0216707	10.5111858	3
58	9.4892040	9.9782883	9.5109156	10.4890844	10.0217117	10.5107960	2
59	9.4895933	9.9782474	9.5113460	10.4886540	10.0217526	10.5104066	1
60	9.4899824	9.9782063	9.5117760	10.4882240	10.0217937	10.5100176	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

72 Degrees.

18 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.4899824	9.9782063	9.5117760	10.4882240	10.0217937	10.5100176	60
1	9.4903710	9.9781653	9.5122057	10.4877943	10.0218347	10.5096290	59
2	9.4907592	9.9781241	9.5126351	10.4873649	10.0218759	10.5092408	58
3	9.4911471	9.9780830	9.5130641	10.4869359	10.0219170	10.5088529	57
4	9.4915345	9.9780418	9.5134927	10.4865073	10.0219582	10.5084655	56
5	9.4919216	9.9780006	9.5139210	10.4860790	10.0219994	10.5080784	55
6	9.4923083	9.9779593	9.5143490	10.4856510	10.0220407	10.5076917	54
7	9.4926946	9.9779180	9.5147766	10.4852234	10.0220820	10.5073054	53
8	9.4930806	9.9778766	9.5152039	10.4847961	10.0221234	10.5069194	52
9	9.4934661	9.9778353	9.5156309	10.4843691	10.0221647	10.5065339	51
10	9.4938513	9.9777938	9.5160575	10.4839425	10.0222062	10.5061487	50
11	9.4942361	9.9777523	9.5164838	10.4835162	10.0222477	10.5057639	49
12	9.4946205	9.9777108	9.5169097	10.4830903	10.0222892	10.5053795	48
13	9.4950046	9.9776693	9.5173353	10.4826647	10.0223307	10.5049954	47
14	9.4953883	9.9776277	9.5177606	10.4822394	10 23723	10.5046117	46
15	9.4957716	9.9775860	9.5181855	10.4818145	10.0224140	10.5042284	45
16	9.4961545	9.9775444	9.5186101	10.4813899	10.0224556	10.5038455	44
17	9.4965370	9.9775026	9.5190344	10.4809656	10.0224974	10.5034630	43
18	9.4969192	9.9774609	9.5194583	10.4805417	10.0225391	10.5030808	42
19	9.4973010	9.9774191	9.5198819	10.4801181	10.0225809	10.5026990	41
20	9.4976824	9.9773772	9.5203052	10.4796948	10.0226228	10.5023176	40
21	9.4980635	9.9773354	9.5207282	10.4792718	10.0226646	10.5019365	39
22	9.4.84442	9.9772934	9.5211508	10.4788492	10.0227066	10.5015558	38
23	9.4988245	9.9772515	9.5215730	10.4784270	10.0227485	10.5011755	37
24	9.4992045	9.9772095	9.5219950	10.4780050	10.0227905	10.5007955	36
25	9.4995840	9.9771674	9.5224166	10.4775834	10.0228326	10.5004160	35
26	9.4999633	9.9771253	9.5228379	10.4771621	10.0228747	10.5000367	34
27	9.5003421	9.9770832	9.5232589	10.4767411	10.0229168	10.4996579	33
28	9.5007206	9.9770410	9.5236795	10.4763205	10.0229590	10.4992794	32
29	9.5010987	9.9769988	9.5240999	10.4759001	10.0230012	10.4989013	31
30	9.5014764	9.9769566	9.5245199	10.4754801	10.0230434	10.4985236	30
31	9.5018538	9.9769143	9.5249395	10.4750605	10.0230857	10.4981462	29
32	9.5022308	9.9768720	9.5253589	10.4746411	10.0231280	10.4977692	28
33	9.5026075	9.9768296	9.5257779	10.4742221	10.0231704	10.4973925	27
34	9.5029838	9.9767872	9.5261966	10.4738034	10.0232128	10.4970162	26
35	9.5033597	9.9767447	9.5266150	10.4733850	10.0232553	10.4966403	25
36	9.5037353	9.9767022	9.5270331	10.4729669	10.0232978	10.4962647	24
37	9.5041105	9.9766597	9.5274508	10.4725492	10.0233403	10.4958895	23
38	9.5044853	9.9766171	9.5278682	10.4721318	10.0233829	10.4955147	22
39	9.5048598	9.9765745	9.5282853	10.4717147	16.0234255	10.4951402	21
40	9.5052339	9.9765318	9.5287021	10.4712979	10.0234682	10.4947661	20
41	9.5056077	9.9764891	9.5291186	10.4708814	10.0235109	10.4943923	19
42	9.5059811	9.9764464	9.5295347	10.4704653	10.0235536	10.4940189	18
43	9.5063542	9.9764036	9.5299505	10.4700495	10.0235964	10.4936458	17
44	9.5067269	9.9763608	9.5303661	10.4696339	10.0236392	10.4932731	16
45	9.5070992	9.9763179	9.5307813	10.4692187	10.0236821	10.4929008	15
46	9.5074712	9.9762750	9.5311961	10.4688039	10.0237250	10.4925288	14
47	9.5078428	9.9762321	9.5316107	10.4683893	10.0237679	10.4921572	13
48	9.5082141	9.9761891	9.5320250	10.4679750	10.0238109	10.4917859	12
49	9.5085850	9.9761461	9.5324389	10.4675611	10.0238539	10.4914150	11
50	9.5089556	9.9761030	9.5328526	10.4671474	10.0238970	10.4910444	10
51	9.5093258	9.9760599	9.5332659	10.4667341	10.0239401	10.4906742	9
52	9.5096956	9.9760167	9.5336789	10.4663211	10.0239833	10.4903044	8
53	9.5100651	9.9759736	9.5340916	10.4659084	10.0240264	10.4899349	7
54	9.5104343	9.9759303	9.5345040	10.4654960	10.0240697	10.4895657	6
55	9.5108031	9.9758870	9.5349161	10.4650839	10.0241130	10.4891969	5
56	9.5111716	9.9758437	9.5353278	10.4646722	10.0241563	10.4888284	4
57	9.5115397	9.9758004	9.5357393	10.4642607	10.0241996	10.4884603	3
58	9.5119074	9.9757570	9.5361505	10.4638495	10.0242430	10.4880926	2
59	9.5122749	9.9757135	9.5365613	10.4634387	10.0242865	10.4877251	1
60	9.5126419	9.9756701	9.5369719	10.4630281	10.0243299	10.4873581	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

71 Degrees.

19 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.5126419	9.9756701	9.5369718	10.4630281	10.0243299	10.4873581	60
1	9.5130086	9.9756265	9.5373821	10.4626179	10.0243735	10.4869914	59
2	9.5133750	9.9755830	9.5377920	10.4622080	10.0244170	10.4866250	58
3	9.5137410	9.9755394	9.5382017	10.4617983	10.0244606	10.4862590	57
4	9.5141067	9.9754957	9.5386110	10.4613890	10.0245043	10.4858933	56
5	9.5144721	9.9754521	9.5390200	10.4609800	10.0245479	10.4855279	55
6	9.5148375	9.9754038	9.5394287	10.4605713	10.0245917	10.4851629	54
7	9.5152017	9.9753646	9.5398371	10.4601629	10.0246354	10.4847983	53
8	9.5155660	9.9753208	9.5402451	10.4597547	10.0246792	10.4844340	52
9	9.5159300	9.9752769	9.5406531	10.4593469	10.0247231	10.4840700	51
10	9.5162936	9.9752330	9.5410606	10.4589394	10.0247670	10.4837064	50
11	9.5166569	9.9751891	9.5414678	10.4585321	10.0248109	10.4833431	49
12	9.5170198	9.9751451	9.5418747	10.4581253	10.0248549	10.4829802	48
13	9.5173824	9.9751011	9.5422813	10.4577187	10.0248989	10.4826176	47
14	9.5177447	9.9750571	9.5426877	10.4573123	10.0249430	10.4822553	46
15	9.5181066	9.9750129	9.5430937	10.4569063	10.0249871	10.4818934	45
16	9.5184682	9.9749688	9.5434994	10.4565006	10.0250312	10.4815318	44
17	9.5188295	9.9749246	9.5439048	10.4560952	10.0250754	10.4811705	43
18	9.5191904	9.9748804	9.5443100	10.4556900	10.0251196	10.4808096	42
19	9.5195510	9.9748361	9.5447148	10.4552852	10.0251639	10.4804490	41
20	9.5199112	9.9747918	9.5451193	10.4548807	10.0252082	10.4800888	40
21	9.5202711	9.9747476	9.5455236	10.4544764	10.0252525	10.4797289	39
22	9.5206307	9.9747031	9.5459276	10.4540724	10.0252969	10.4793693	38
23	9.5209899	9.9746587	9.5463312	10.4536688	10.0253413	10.4790101	37
24	9.5213488	9.9746142	9.5467346	10.4532654	10.0253858	10.4786512	36
25	9.5217074	9.9745697	9.5471377	10.4528623	10.0254303	10.4782926	35
26	9.5220656	9.9745252	9.5475405	10.4524595	10.0254748	10.4779344	34
27	9.5224235	9.9744806	9.5479430	10.4520570	10.0255194	10.4775765	33
28	9.5227811	9.9744359	9.5483452	10.4516548	10.0255641	10.4772189	32
29	9.5231383	9.9743913	9.5487471	10.4512529	10.0256087	10.4768617	31
30	9.5234953	9.9743466	9.5491487	10.4508513	10.0256534	10.4765047	30
31	9.5238518	9.9743018	9.5495500	10.4504500	10.0256982	10.4761482	29
32	9.5242081	9.9742570	9.5499511	10.4500489	10.0257430	10.4757919	28
33	9.5245640	9.9742122	9.5503519	10.4496481	10.0257878	10.4754360	27
34	9.5249196	9.9741673	9.5507523	10.4492477	10.0258327	10.4750804	26
35	9.5252749	9.9741224	9.5511525	10.4488475	10.0258776	10.4747251	25
36	9.5256298	9.9740774	9.5515524	10.4484476	10.0259226	10.4743702	24
37	9.5259844	9.9740324	9.5519521	10.4480479	10.0259676	10.4740156	23
38	9.5263387	9.9739873	9.5523514	10.4476486	10.0260127	10.4736613	22
39	9.5266927	9.9739422	9.5527504	10.4472496	10.0260578	10.4733073	21
40	9.5270463	9.9738971	9.5531492	10.4468508	10.0261029	10.4729537	20
41	9.5273997	9.9738519	9.5535477	10.4464523	10.0261481	10.4726003	19
42	9.5277526	9.9738067	9.5539459	10.4460541	10.0261933	10.4722474	18
43	9.5281053	9.9737615	9.5543438	10.4456562	10.0262385	10.4718947	17
44	9.5284577	9.9737162	9.5547415	10.4452585	10.0262838	10.4715423	16
45	9.5288097	9.9736709	9.5551388	10.4448612	10.0263291	10.4711903	15
46	9.5291614	9.9736255	9.5555359	10.4444641	10.0263745	10.4708386	14
47	9.5295128	9.9735801	9.5559327	10.4440673	10.0264199	10.4704872	13
48	9.5298638	9.9735346	9.5563292	10.4436708	10.0264654	10.4701362	12
49	9.5302146	9.9734891	9.5567255	10.4432745	10.0265109	10.4697854	11
50	9.5305650	9.9734435	9.5571214	10.4428786	10.0265565	10.4694350	10
51	9.5309151	9.9733980	9.5575171	10.4424829	10.0266020	10.4690849	9
52	9.5312649	9.9733523	9.5579125	10.4420875	10.0266477	10.4687351	8
53	9.5316143	9.9733067	9.5583077	10.4416923	10.0266933	10.4683857	7
54	9.5319635	9.9732610	9.5587025	10.4412975	10.0267390	10.4680365	6
55	9.5323123	9.9732152	9.5590971	10.4409029	10.0267848	10.4676877	5
56	9.5326608	9.9731694	9.5594914	10.4405086	10.0268306	10.4673392	4
57	9.5330090	9.9731236	9.5598854	10.4401146	10.0268764	10.4669910	3
58	9.5333569	9.9730777	9.5602792	10.4397208	10.0269223	10.4666431	2
59	9.5337044	9.9730318	9.5606727	10.4393273	10.0269682	10.4662956	1
60	9.5340517	9.9729858	9.5610659	10.4389341	10.0270142	10.4659483	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

70 Degrees.

20 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.5340517	9.9729858	9.5610659	10.4389342	10.0270142	10.4659483	60
1	9.5343986	9.9729398	9.5614588	10.4385412	10.0270602	10.4656014	59
2	9.5347452	9.9728938	9.5618515	10.4381485	10.0271062	10.4652548	58
3	9.5350915	9.9728477	9.5622439	10.4377561	10.0271523	10.4649085	57
4	9.5354375	9.9728016	9.5626360	10.4373640	10.0271984	10.4645625	56
5	9.5357832	9.9727554	9.5630278	10.4369722	10.0272446	10.4642168	55
6	9.5361286	9.9727092	9.5634194	10.4365806	10.0272908	10.4638714	54
7	9.5364737	9.9726629	9.5638107	10.4361893	10.0273371	10.4635263	53
8	9.5368184	9.9726166	9.5642018	10.4357982	10.0273834	10.4631816	52
9	9.5371629	9.9725703	9.5645925	10.4354075	10.0274297	10.4628371	51
10	9.5375070	9.9725239	9.5649831	10.4350169	10.0274761	10.4624930	50
11	9.5378508	9.9724775	9.5653733	10.4346267	10.0275225	10.4621492	49
12	9.5381943	9.9724310	9.5657633	10.4342367	10.0275690	10.4618057	48
13	9.5385375	9.9723845	9.5661530	10.4338470	10.0276155	10.4614625	47
14	9.5388804	9.9723380	9.5665424	10.4334576	10.0276620	10.4611196	46
15	9.5392230	9.9722914	9.5669316	10.4330684	10.0277086	10.4607770	45
16	9.5395653	9.9722448	9.5673205	10.4326795	10.0277552	10.4604347	44
17	9.5399073	9.9721981	9.5677091	10.4322909	10.0278019	10.4600927	43
18	9.5402489	9.9721514	9.5680975	10.4319025	10.0278486	10.4597511	42
19	9.5405903	9.9721047	9.5684856	10.4315144	10.0278953	10.4594097	41
20	9.5409314	9.9720579	9.5688735	10.4311265	10.0279421	10.4590686	40
21	9.5412721	9.9720110	9.5692611	10.4307389	10.0279890	10.4587279	39
22	9.5416126	9.9719642	9.5696484	10.4303516	10.0280358	10.4583874	38
23	9.5419527	9.9719172	9.5700355	10.4299645	10.0280828	10.4580473	37
24	9.5422926	9.9718703	9.5704223	10.4295777	10.0281297	10.4577074	36
25	9.5426321	9.9718233	9.5708088	10.4291912	10.0281767	10.4573679	35
26	9.5429713	9.9717762	9.5711951	10.4288049	10.0282238	10.4570287	34
27	9.5433103	9.9717291	9.5715811	10.4284189	10.0282709	10.4566897	33
28	9.5436489	9.9716820	9.5719669	10.4280331	10.0283180	10.4563511	32
29	9.5439873	9.9716348	9.5723524	10.4276476	10.0283652	10.4560127	31
30	9.5443253	9.9715876	9.5727377	10.4272623	10.0284124	10.4556747	30
31	9.5446630	9.9715404	9.5731227	10.4268773	10.0284596	10.4553370	29
32	9.5450005	9.9714931	9.5735074	10.4264926	10.0285069	10.4549995	28
33	9.5453376	9.9714457	9.5738919	10.4261081	10.0285543	10.4546624	27
34	9.5456745	9.9713984	9.5742761	10.4257239	10.0286016	10.4543255	26
35	9.5460110	9.9713509	9.5746601	10.4253399	10.0286491	10.4539890	25
36	9.5463472	9.9713035	9.5750438	10.4249562	10.0286965	10.4536528	24
37	9.5466832	9.9712560	9.5754272	10.4245728	10.0287440	10.4533168	23
38	9.5470189	9.9712084	9.5758104	10.4241896	10.0287916	10.4529811	22
39	9.5473542	9.9711608	9.5761934	10.4238066	10.0288392	10.4526458	21
40	9.5476893	9.9711132	9.5765761	10.4234239	10.0288868	10.4523107	20
41	9.5480240	9.9710655	9.5769585	10.4230415	10.0289345	10.4519760	19
42	9.5483585	9.9710178	9.5773407	10.4226593	10.0289822	10.4516415	18
43	9.5486927	9.9709701	9.5777226	10.4222774	10.0290299	10.4513073	17
44	9.5490266	9.9709223	9.5781043	10.4218957	10.0290777	10.4509734	16
45	9.5493602	9.9708744	9.5784858	10.4215142	10.0291256	10.4506398	15
46	9.5496935	9.9708265	9.5788669	10.4211331	10.0291735	10.4503065	14
47	9.5500265	9.9707786	9.5792479	10.4207521	10.0292214	10.4499735	13
48	9.5503592	9.9707306	9.5796286	10.4203714	10.0292694	10.4496408	12
49	9.5506916	9.9706826	9.5800090	10.4199910	10.0293174	10.4493084	11
50	9.5510237	9.9706346	9.5803892	10.4196108	10.0293654	10.4489763	10
51	9.5513556	9.9705865	9.5807691	10.4192309	10.0294135	10.4486444	9
52	9.5516871	9.9705383	9.5811488	10.4188512	10.0294617	10.4483129	8
53	9.5520184	9.9704902	9.5815282	10.4184718	10.0295098	10.4479816	7
54	9.5523494	9.9704419	9.5819074	10.4180926	10.0295581	10.4476506	6
55	9.5526801	9.9703937	9.5822864	10.4177136	10.0296063	10.4473199	5
56	9.5530105	9.9703454	9.5826651	10.4173349	10.0296546	10.4469895	4
57	9.5533406	9.9702970	9.5830435	10.4169565	10.0297030	10.4466594	3
58	9.5536704	9.9702486	9.5834217	10.4165783	10.0297514	10.4463296	2
59	9.5539999	9.9702002	9.5837997	10.4162003	10.0297998	10.4460001	1
60	9.5543292	9.9701517	9.5841774	10.4158226	10.0298483	10.4456708	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

21 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.5543232	9.9701517	9.5541774	10.4458226	10.0298483	10.4456768	60
1	9.5546581	9.9701032	9.5845549	10.4154451	10.0298968	10.4453419	59
2	9.5549868	9.9700547	9.5849321	10.4150679	10.0299453	10.4450132	58
3	9.5553152	9.9700061	9.5853091	10.4146909	10.0299939	10.4446848	57
4	9.5556433	9.9699574	9.5856859	10.4143141	10.0300426	10.4443567	56
5	9.5559711	9.9699087	9.5860624	10.4139376	10.0300913	10.4440289	55
6	9.5562987	9.9698600	9.5864386	10.4135614	10.0301400	10.4437013	54
7	9.5566259	9.9698112	9.5868147	10.4131853	10.0301888	10.4433741	53
8	9.5569529	9.9697624	9.5871904	10.4128096	10.0302376	10.4430471	52
9	9.5572796	9.9697136	9.5875660	10.4124340	10.0302864	10.4427204	51
10	9.5576060	9.9696647	9.5879413	10.4120587	10.0303353	10.4423940	50
11	9.5579321	9.9696158	9.5883163	10.4116837	10.0303842	10.4420679	49
12	9.5582579	9.9695668	9.5886912	10.4113088	10.0304332	10.4417421	48
13	9.5585835	9.9695177	9.5890657	10.4109343	10.0304823	10.4414165	47
14	9.5589088	9.9694687	9.5894401	10.4105599	10.0305313	10.4410912	46
15	9.5592338	9.9694196	9.5898142	10.4101858	10.0305804	10.4407662	45
16	9.5595585	9.9693704	9.5901881	10.4098119	10.0306296	10.4404415	44
17	9.5598829	9.9693212	9.5905617	10.4094383	10.0306788	10.4401171	43
18	9.5602071	9.9692720	9.5909351	10.4090649	10.0307280	10.4397929	42
19	9.5605310	9.9692227	9.5913082	10.4086918	10.0307773	10.4394690	41
20	9.5608546	9.9691734	9.5916812	10.4083188	10.0308266	10.4391454	40
21	9.5611779	9.9691241	9.5920539	10.4079461	10.0308759	10.4388221	39
22	9.5615010	9.9690746	9.5924263	10.4075737	10.0309254	10.4384990	38
23	9.5618237	9.9690252	9.5927985	10.4072015	10.0309748	10.4381763	37
24	9.5621462	9.9689757	9.5931705	10.4068295	10.0310243	10.4378538	36
25	9.5624685	9.9689262	9.5935423	10.4064577	10.0310738	10.4375315	35
26	9.5627904	9.9688766	9.5939138	10.4060862	10.0311234	10.4372096	34
27	9.5631121	9.9688270	9.5942851	10.4057149	10.0311730	10.4368879	33
28	9.5634335	9.9687773	9.5946561	10.4053439	10.0312227	10.4365665	32
29	9.5637546	9.9687276	9.5950269	10.4049731	10.0312724	10.4362454	31
30	9.5640754	9.9686779	9.5953975	10.4046025	10.0313221	10.4359246	30
31	9.5643960	9.9686281	9.5957679	10.4042321	10.0313719	10.4356040	29
32	9.5647163	9.9685783	9.5961380	10.4038620	10.0314217	10.4352837	28
33	9.5650363	9.9685284	9.5965079	10.4034921	10.0314716	10.4349637	27
34	9.5653561	9.9684785	9.5968776	10.4031224	10.0315215	10.4346439	26
35	9.5650756	9.9684286	9.5972470	10.4027530	10.0315714	10.4343244	25
36	9.5659948	9.9683786	9.5976162	10.4023838	10.0316214	10.4340052	24
37	9.5663137	9.9683285	9.5979852	10.4020148	10.0316715	10.4336863	23
38	9.5666324	9.9682784	9.5983540	10.4016460	10.0317216	10.4333676	22
39	9.5669508	9.9682283	9.5987225	10.4012775	10.0317717	10.4330492	21
40	9.5672689	9.9681781	9.5990908	10.4009092	10.0318219	10.4327311	20
41	9.5675868	9.9681279	9.5994588	10.4005412	10.0318721	10.4324132	19
42	9.5679044	9.9680777	9.5998267	10.4001733	10.0319223	10.4320956	18
43	9.5682217	9.9680274	9.6001943	10.3998057	10.0319726	10.4317783	17
44	9.5685387	9.9679771	9.6005617	10.3994383	10.0320229	10.4314613	16
45	9.5688555	9.9679267	9.6009289	10.3990711	10.0320733	10.4311445	15
46	9.5691721	9.9678763	9.6012956	10.3987042	10.0321237	10.4308279	14
47	9.5694883	9.9678258	9.6016625	10.3983375	10.0321742	10.4305117	13
48	9.5698043	9.9677753	9.6020290	10.3979710	10.0322247	10.4301957	12
49	9.5701200	9.9677247	9.6023953	10.3976047	10.0322753	10.4298800	11
50	9.5704355	9.9676741	9.6027613	10.3972387	10.0323259	10.4295645	10
51	9.5707506	9.9676235	9.6031271	10.3968729	10.0323765	10.4292494	9
52	9.5710656	9.9675728	9.6034927	10.3965073	10.0324272	10.4289344	8
53	9.5713802	9.9675221	9.6038581	10.3961419	10.0324779	10.4286198	7
54	9.5716946	9.9674713	9.6042233	10.3957767	10.0325287	10.4283054	6
55	9.5720087	9.9674205	9.6045882	10.3954118	10.0325795	10.4279913	5
56	9.5723226	9.9673697	9.6049529	10.3950471	10.0326303	10.4276774	4
57	9.5726362	9.9673188	9.6053174	10.3946826	10.0326812	10.4273638	3
58	9.5729495	9.9672679	9.6056817	10.3943183	10.0327321	10.4270505	2
59	9.5732626	9.9672169	9.6060457	10.3939543	10.0327831	10.4267374	1
60	9.5735754	9.9671659	9.6064096	10.3935904	10.0328341	10.4264246	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

22 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.5735754	9.9671659	9.6064096	10.3935904	10.0328341	10.4264246	60
1	9.5738880	9.9671148	9.6067732	10.3932268	10.0328852	10.4261120	59
2	9.5742003	9.9670637	9.6071366	10.3928634	10.0329363	10.4257997	58
3	9.5745123	9.9670125	9.6074997	10.3925003	10.0329875	10.4254877	57
4	9.5748240	9.9669614	9.6078627	10.3921373	10.0330386	10.4251760	56
5	9.5751356	9.9669101	9.6082254	10.3917746	10.0330899	10.4248644	55
6	9.5754468	9.9668588	9.6085880	10.3914120	10.0331412	10.4245532	54
7	9.5757578	9.9668075	9.6089503	10.3910497	10.0331925	10.4242422	53
8	9.5760685	9.9667562	9.6093124	10.3906876	10.0332438	10.4239315	52
9	9.5763790	9.9667048	9.6096742	10.3903258	10.0332952	10.4236210	51
10	9.5766892	9.9666533	9.6100359	10.3899641	10.0333467	10.4233108	50
11	9.5769991	9.9666018	9.6103973	10.3896027	10.0333982	10.4230009	49
12	9.5773088	9.9665503	9.6107586	10.3892414	10.0334497	10.4226912	48
13	9.5776183	9.9664987	9.6111196	10.3888804	10.0335013	10.4223817	47
14	9.5779275	9.9664471	9.6114804	10.3885196	10.0335529	10.4220725	46
15	9.5782364	9.9663954	9.6118409	10.3881591	10.0336046	10.4217636	45
16	9.5785450	9.9663437	9.6122013	10.3877987	10.0336563	10.4214550	44
17	9.5788535	9.9662920	9.6125615	10.3874385	10.0337080	10.4211465	43
18	9.5791616	9.9662402	9.6129214	10.3870786	10.0337598	10.4208384	42
19	9.5794695	9.9661884	9.6132812	10.3867188	10.0338116	10.4205305	41
20	9.5797772	9.9661365	9.6136407	10.3863593	10.0338635	10.4202228	40
21	9.5800845	9.9660846	9.6140000	10.3860000	10.0339154	10.4199155	39
22	9.5803917	9.9660326	9.6143591	10.3856409	10.0339674	10.4196083	38
23	9.5806986	9.9659806	9.6147180	10.3852820	10.0340194	10.4193014	37
24	9.5810052	9.9659285	9.6150766	10.3849234	10.0340715	10.4189948	36
25	9.5813116	9.9658764	9.6154351	10.3845649	10.0341236	10.4186884	35
26	9.5816177	9.9658243	9.6157934	10.3842066	10.0341757	10.4183823	34
27	9.5819236	9.9657721	9.6161514	10.3838486	10.0342279	10.4180764	33
28	9.5822292	9.9657199	9.6165093	10.3834907	10.0342801	10.4177708	32
29	9.5825345	9.9656677	9.6168669	10.3831331	10.0343323	10.4174655	31
30	9.5828397	9.9656153	9.6172243	10.3827757	10.0343847	10.4171603	30
31	9.5831445	9.9655630	9.6175815	10.3824185	10.0344370	10.4168555	29
32	9.5834491	9.9655106	9.6179385	10.3820615	10.0344894	10.4165509	28
33	9.5837535	9.9654582	9.6182953	10.3817047	10.0345418	10.4162465	27
34	9.5840576	9.9654057	9.6186519	10.3813481	10.0345943	10.4159424	26
35	9.5843615	9.9653532	9.6190083	10.3809917	10.0346468	10.4156385	25
36	9.5846651	9.9653006	9.6193645	10.3806355	10.0346994	10.4153349	24
37	9.5849685	9.9652480	9.6197205	10.3802795	10.0347520	10.4150315	23
38	9.5852716	9.9651953	9.6200762	10.3799238	10.0348047	10.4147284	22
39	9.5855745	9.9651426	9.6204318	10.3795682	10.0348574	10.4144255	21
40	9.5858771	9.9650899	9.6207872	10.3792128	10.0349101	10.4141229	20
41	9.5861795	9.9650371	9.6211423	10.3788577	10.0349629	10.4138205	19
42	9.5864816	9.9649842	9.6214973	10.3785027	10.0350157	10.4135184	18
43	9.5867835	9.9649314	9.6218520	10.3781480	10.0350686	10.4132165	17
44	9.5870851	9.9648785	9.6222066	10.3777934	10.0351215	10.4129149	16
45	9.5873865	9.9648256	9.6225609	10.3774391	10.0351744	10.4126135	15
46	9.5876876	9.9647726	9.6229150	10.3770850	10.0352274	10.4123124	14
47	9.5879885	9.9647195	9.6232690	10.3767310	10.0352805	10.4120115	13
48	9.5882892	9.9646665	9.6236227	10.3763773	10.0353335	10.4117108	12
49	9.5885896	9.9646133	9.6239763	10.3760237	10.0353867	10.4114104	11
50	9.5888897	9.9645602	9.6243296	10.3756704	10.0354398	10.4111103	10
51	9.5891897	9.9645067	9.6246827	10.3753173	10.0354931	10.4108103	9
52	9.5894893	9.9644537	9.6250356	10.3749644	10.0355463	10.4105107	8
53	9.5897888	9.9644004	9.6253884	10.3746116	10.0355996	10.4102112	7
54	9.5900880	9.9643470	9.6257409	10.3742591	10.0356530	10.4099120	6
55	9.5903869	9.9642937	9.6260932	10.3739068	10.0357063	10.4096131	5
56	9.5906856	9.9642402	9.6264454	10.3735546	10.0357598	10.4093144	4
57	9.5909841	9.9641868	9.6267973	10.3732027	10.0358132	10.4090159	3
58	9.5912823	9.9641332	9.6271491	10.3728509	10.0358668	10.4087177	2
59	9.5915803	9.9640797	9.6275006	10.3724994	10.0359203	10.4084197	1
60	9.5918780	9.9640261	9.6278519	10.3721481	10.0359739	10.4081220	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

67 Degrees.

23 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.5918780	9.9640261	9.6278519	10.3721481	10.0359739	10.4081220	60
1	9.5921755	9.9639724	9.6282031	10.3717969	10.0360276	10.4078245	59
2	9.5924728	9.9639187	9.6285540	10.3714460	10.0360813	10.4075272	58
3	9.5927698	9.9638650	9.6289048	10.3710952	10.0361350	10.4072302	57
4	9.5930666	9.9638112	9.6292553	10.3707447	10.0361888	10.4069334	56
5	9.5933631	9.9637574	9.6296057	10.3703943	10.0362426	10.4066369	55
6	9.5936594	9.9637036	9.6299558	10.3700442	10.0362964	10.4063406	54
7	9.5939555	9.9636496	9.6303058	10.3696942	10.0363504	10.4060445	53
8	9.5942513	9.9635957	9.6306556	10.3693444	10.0364043	10.4057487	52
9	9.5945469	9.9635417	9.6310052	10.3689948	10.0364583	10.4054531	51
10	9.5948422	9.9634877	9.6313545	10.3686455	10.0365123	10.4051578	50
11	9.5951373	9.9634336	9.6317037	10.3682963	10.0365664	10.4048627	49
12	9.5954322	9.9633795	9.6320527	10.3679473	10.0366205	10.4045678	48
13	9.5957268	9.9633253	9.6324015	10.3675985	10.0366747	10.4042732	47
14	9.5960212	9.9632711	9.6327501	10.3672499	10.0367289	10.4039788	46
15	9.5963154	9.9632168	9.6330985	10.3669015	10.0367832	10.4036846	45
16	9.5966093	9.9631625	9.6334468	10.3665532	10.0368375	10.4033907	44
17	9.5969030	9.9631082	9.6337948	10.3662052	10.0368918	10.4030970	43
18	9.5971965	9.9630538	9.6341426	10.3658574	10.0369462	10.4028035	42
19	9.5974897	9.9629994	9.6344903	10.3655097	10.0370006	10.4025103	41
20	9.5977827	9.9629449	9.6348378	10.3651622	10.0370551	10.4022173	40
21	9.5980754	9.9628904	9.6351850	10.3648150	10.0371096	10.4019246	39
22	9.5983679	9.9628358	9.6355321	10.3644679	10.0371642	10.4016321	38
23	9.5986602	9.9627812	9.6358790	10.3641210	10.0372188	10.4013398	37
24	9.5989523	9.9627266	9.6362257	10.3637743	10.0372734	10.4010477	36
25	9.5992441	9.9626719	9.6365722	10.3634278	10.0373281	10.4007559	35
26	9.5995357	9.9626172	9.6369185	10.3630815	10.0373828	10.4004643	34
27	9.5998270	9.9625624	9.6372646	10.3627354	10.0374376	10.4001730	33
28	9.6001181	9.9625076	9.6376106	10.3623894	10.0374924	10.3998819	32
29	9.6004090	9.9624527	9.6379563	10.3620437	10.0375473	10.3995910	31
30	9.6006997	9.9623978	9.6383019	10.3616981	10.0376022	10.3993003	30
31	9.6009901	9.9623428	9.6386473	10.3613527	10.0376572	10.3990099	29
32	9.6012803	9.9622878	9.6389925	10.3610075	10.0377122	10.3987197	28
33	9.6015703	9.9622328	9.6393375	10.3606625	10.0377672	10.3984297	27
34	9.6018600	9.9621777	9.6396823	10.3603177	10.0378223	10.3981400	26
35	9.6021495	9.9621226	9.6400269	10.3599731	10.0378774	10.3978505	25
36	9.6024388	9.9620674	9.6403714	10.3596286	10.0379326	10.3975612	24
37	9.6027278	9.9620122	9.6407156	10.3592844	10.0379878	10.3972722	23
38	9.6030166	9.9619569	9.6410597	10.3589403	10.0380431	10.3969834	22
39	9.6033052	9.9619016	9.6414036	10.3585964	10.0380984	10.3966948	21
40	9.6035936	9.9618463	9.6417473	10.3582527	10.0381537	10.3964064	20
41	9.6038817	9.9617909	9.6420908	10.3579092	10.0382091	10.3961183	19
42	9.6041696	9.9617355	9.6424342	10.3575658	10.0382645	10.3958304	18
43	9.6044573	9.9616800	9.6427773	10.3572227	10.0383200	10.3955427	17
44	9.6047448	9.9616245	9.6431203	10.3568797	10.0383755	10.3952552	16
45	9.6050320	9.9615689	9.6434631	10.3565369	10.0384311	10.3949680	15
46	9.6053190	9.9615133	9.6438057	10.3561943	10.0384867	10.3946810	14
47	9.6056057	9.9614576	9.6441481	10.3558519	10.0385424	10.3943943	13
48	9.6058923	9.9614020	9.6444903	10.3555097	10.0385980	10.3941077	12
49	9.6061786	9.9613462	9.6448324	10.3551676	10.0386538	10.3938214	11
50	9.6064647	9.9612904	9.6451743	10.3548257	10.0387096	10.3935353	10
51	9.6067506	9.9612346	9.6455160	10.3544840	10.0387654	10.3932494	9
52	9.6070362	9.9611787	9.6458575	10.3541425	10.0388213	10.3929638	8
53	9.6073216	9.9611228	9.6461988	10.3538012	10.0388772	10.3926784	7
54	9.6076068	9.9610668	9.6465400	10.3534600	10.0389332	10.3923932	6
55	9.6078918	9.9610108	9.6468810	10.3531190	10.0389892	10.3921082	5
56	9.6081765	9.9609548	9.6472217	10.3527783	10.0390452	10.3918235	4
57	9.6084611	9.9608987	9.6475624	10.3524376	10.0391013	10.3915389	3
58	9.6087454	9.9608426	9.6479028	10.3520972	10.0391574	10.3912546	2
59	9.6090294	9.9607864	9.6482431	10.3517569	10.0392136	10.3909706	1
60	9.6093133	9.9607302	9.6485831	10.3514169	10.0392698	10.3906867	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

24 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.6093133	9.9607302	9.6485831	10.3514169	10.0392698	10.3908867	60
1	9.6095969	9.9606739	9.6489230	10.3510770	10.0393261	10.3904031	59
2	9.6098803	9.9606176	9.6492628	10.3507372	10.0393824	10.3901197	58
3	9.6101635	9.9605612	9.6496023	10.3503977	10.0394388	10.3898365	57
4	9.6104465	9.9605048	9.6499417	10.3500583	10.0394952	10.3895535	56
5	9.6107293	9.9604484	9.6502809	10.3497191	10.0395516	10.3892707	55
6	9.6110118	9.9603919	9.6506199	10.3493801	10.0396081	10.3889882	54
7	9.6112941	9.9603354	9.6509587	10.3490413	10.0396646	10.3887059	53
8	9.6115762	9.9602788	9.6512974	10.3487026	10.0397212	10.3884238	52
9	9.6118580	9.9602222	9.6516359	10.3483641	10.0397778	10.3881420	51
10	9.6121397	9.9601655	9.6519742	10.3480258	10.0398345	10.3878603	50
11	9.6124211	9.9601088	9.6523123	10.3476877	10.0398912	10.3875789	49
12	9.6127023	9.9600520	9.6526503	10.3473497	10.0399480	10.3872977	48
13	9.6129833	9.9599952	9.6529881	10.3470119	10.0400048	10.3870167	47
14	9.6132641	9.9599384	9.6533257	10.3466743	10.0400616	10.3867359	46
15	9.6135446	9.9598815	9.6536631	10.3463369	10.0401185	10.3864554	45
16	9.6138250	9.9598246	9.6540004	10.3459996	10.0401754	10.3861750	44
17	9.6141051	9.9597676	9.6543375	10.3456625	10.0402324	10.3858949	43
18	9.6143850	9.9597106	9.6546744	10.3453256	10.0402894	10.3856150	42
19	9.6146647	9.9596535	9.6550112	10.3449888	10.0403465	10.3853353	41
20	9.6149441	9.9595964	9.6553477	10.3446523	10.0404036	10.3850559	40
21	9.6152234	9.9595393	9.6556841	10.3443159	10.0404607	10.3847766	39
22	9.6155024	9.9594821	9.6560204	10.3439796	10.0405179	10.3844976	38
23	9.6157812	9.9594248	9.6563564	10.3436436	10.0405752	10.3842188	37
24	9.6160599	9.9593675	9.6566923	10.3433077	10.0406325	10.3839401	36
25	9.6163382	9.9593102	9.6570280	10.3429720	10.0406898	10.3836618	35
26	9.6166164	9.9592528	9.6573636	10.3426364	10.0407472	10.3833836	34
27	9.6168944	9.9591954	9.6576989	10.3423011	10.0408046	10.3831056	33
28	9.6171721	9.9591380	9.6580341	10.3419659	10.0408620	10.3828279	32
29	9.6174496	9.9590805	9.6583692	10.3416308	10.0409195	10.3825504	31
30	9.6177270	9.9590229	9.6587041	10.3412959	10.0409771	10.3822730	30
31	9.6180041	9.9589653	9.6590387	10.3409613	10.0410347	10.3819959	29
32	9.6182809	9.9589077	9.6593733	10.3406267	10.0410923	10.3817191	28
33	9.6185576	9.9588500	9.6597076	10.3402924	10.0411500	10.3814424	27
34	9.6188341	9.9587923	9.6600418	10.3399582	10.0412077	10.3811659	26
35	9.6191103	9.9587345	9.6603758	10.3396242	10.0412655	10.3808897	25
36	9.6193864	9.9586767	9.6607097	10.3392903	10.0413233	10.3806136	24
37	9.6196622	9.9586188	9.6610434	10.3389566	10.0413812	10.3803378	23
38	9.6199378	9.9585609	9.6613769	10.3386231	10.0414391	10.3800622	22
39	9.6202132	9.9585030	9.6617103	10.3382897	10.0414970	10.3797868	21
40	9.6204884	9.9584450	9.6620434	10.3379566	10.0415550	10.3795116	20
41	9.6207634	9.9583869	9.6623765	10.3376235	10.0416131	10.3792366	19
42	9.6210382	9.9583288	9.6627093	10.3372907	10.0416712	10.3789618	18
43	9.6213127	9.9582707	9.6630420	10.3369580	10.0417293	10.3786873	17
44	9.6215871	9.9582125	9.6633745	10.3366255	10.0417875	10.3784129	16
45	9.6218612	9.9581543	9.6637069	10.3362931	10.0418457	10.3781388	15
46	9.6221351	9.9580961	9.6640391	10.3359609	10.0419039	10.3778649	14
47	9.6224088	9.9580378	9.6643711	10.3356289	10.0419622	10.3775912	13
48	9.6226824	9.9579794	9.6647030	10.3352970	10.0420206	10.3773176	12
49	9.6229557	9.9579210	9.6650346	10.3349654	10.0420790	10.3770443	11
50	9.6232287	9.9578626	9.6653662	10.3346338	10.0421374	10.3767713	10
51	9.6235016	9.9578041	9.6656975	10.3343025	10.0421959	10.3764984	9
52	9.6237743	9.9577456	9.6660288	10.3339712	10.0422544	10.3762257	8
53	9.6240468	9.9576870	9.6663598	10.3336402	10.0423130	10.3759532	7
54	9.6243190	9.9576284	9.6666907	10.3333093	10.0423716	10.3756810	6
55	9.6245911	9.9575697	9.6670214	10.3329786	10.0424303	10 3754089	5
56	9.6248629	9.9575110	9.6673519	10.3326481	10.0424890	10.3751371	4
57	9.6251346	9.9574522	9.6676823	10.3323177	10.0425478	10.3748654	3
58	9.6254060	9.9573934	9.6680126	10.3319874	10.0426 66	10.3745940	2
59	9.6256772	9.9573346	9.6683426	10.3316574	10.0426654	10.3743228	1
60	9.6259483	9.9572757	9.6686725	10.3313275	10.0427243	10.3740517	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

25 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang	Secant.	Co-fecant	M
0	9.6259483	9.9572757	9.6686725	10.3313275	10.0427243	10.3740517	60
1	9.6262191	9.9572168	9.6690023	10.3309977	10.0427832	10.3737809	59
2	9.6264897	9.9571578	9.6693319	10.3306681	10.0428422	10.3735103	58
3	9.6267601	9.9570988	9.6696613	10.3303387	10.0429012	10.3732399	57
4	9.6270303	9.9570397	9.6699906	10.3300094	10.0429603	10.3729697	56
5	9.6273003	9.9569806	9.6703197	10.3296803	10.0430194	10.3726997	55
6	9.6275701	9.9569215	9.6706486	10.3293514	10.0430785	10.3724299	54
7	9.6278397	9.9568623	9.6709774	10.3290226	10.0431377	10.3721603	53
8	9.6281090	9.9568030	9.6713060	10.3286940	10.0431970	10.3718910	52
9	9.6283782	9.9567437	9.6716345	10.3283655	10.0432563	10.3716218	51
10	9.6286472	9.9566844	9.6719628	10.3280372	10.0433156	10.3713528	50
11	9.6289160	9.9566250	9.6722910	10.3277090	10.0433750	10.3710840	49
12	9.6291845	9.9565656	9.6726190	10.3273810	10.0434344	10.3708155	48
13	9.6294529	9.9565061	9.6729468	10.3270532	10.0434939	10.3705471	47
14	9.6297211	9.9564466	9.6732745	10.3267255	10.0435534	10.3702789	46
15	9.6299890	9.9563870	9.6736020	10.3263980	10.0436130	10.3700110	45
16	9.6302568	9.9563274	9.6739294	10.3260706	10.0436726	10.3697432	44
17	9.6305243	9.9562678	9.6742566	10.3257434	10.0437322	10.3694757	43
18	9.6307917	9.9562081	9.6745836	10.3254164	10.0437919	10.3692083	42
19	9.6310589	9.9561483	9.6749105	10.3250895	10.0438517	10.3689411	41
20	9.6313258	9.9560886	9.6752372	10.3247628	10.0439114	10.3686742	40
21	9.6315926	9.9560287	9.6755638	10.3244362	10.0439713	10.3684074	39
22	9.6318591	9.9559689	9.6758903	10.3241097	10.0440311	10.3681409	38
23	9.6321255	9.9559089	9.6762165	10.3237835	10.0440911	10.3678745	37
24	9.6323916	9.9558490	9.6765426	10.3234574	10.0441510	10.3676084	36
25	9.6326576	9.9557890	9.6768686	10.3231314	10.0442110	10.3673424	35
26	9.6329233	9.9557289	9.6771944	10.3228056	10.0442711	10.3670767	34
27	9.6331889	9.9556688	9.6775201	10.3224799	10.0443312	10.3668111	33
28	9.6334542	9.9556087	9.6778456	10.3221544	10.0443913	10.3665458	32
29	9.6337194	9.9555485	9.6781709	10.3218291	10.0444515	10.3662806	31
30	9.6339844	9.9554882	9.6784961	10.3215039	10.0445118	10.3660156	30
31	9.6342491	9.9554280	9.6788211	10.3211789	10.0445720	10.3657509	29
32	9.6345137	9.9553676	9.6791460	10.3208540	10.0446324	10.3654863	28
33	9.6347780	9.9553072	9.6794708	10.3205292	10.0446927	10.3652220	27
34	9.6350422	9.9552469	9.6797953	10.3202047	10.0447531	10.3649578	26
35	9.6353062	9.9551864	9.6801198	10.3198802	10.0448136	10.3646938	25
36	9.6355699	9.9551259	9.6804440	10.3195560	10.0448741	10.3644301	24
37	9.6358335	9.9550653	9.6807682	10.3192318	10.0449347	10.3641665	23
38	9.6360969	9.9550047	9.6810921	10.3189079	10.0449953	10.3639031	22
39	9.6363601	9.9549441	9.6814160	10.3185840	10.0450559	10.3636399	21
40	9.6366231	9.9548834	9.6817396	10.3182604	10.0451166	10.3633769	20
41	9.6368859	9.9548227	9.6820632	10.3179368	10.0451773	10.3631141	19
42	9.6371484	9.9547619	9.6823865	10.3176135	10.0452381	10.3628516	18
43	9.6374108	9.9547011	9.6827098	10.3172902	10.0452989	10.3625892	17
44	9.6376731	9.9546402	9.6830328	10.3169672	10.0453598	10.3623269	16
45	9.6379351	9.9545793	9.6833557	10.3166443	10.0454207	10.3620649	15
46	9.6381969	9.9545184	9.6836785	10.3163215	10.0454816	10.3618031	14
47	9.6384585	9.9544574	9.6840011	10.3159989	10.0455426	10.3615415	13
48	9.6387199	9.9543963	9.6843236	10.3156764	10.0456037	10.3612801	12
49	9.6389812	9.9543352	9.6846459	10.3153541	10.0456648	10.3610188	11
50	9.6392422	9.9542741	9.6849681	10.3150319	10.0457259	10.3607578	10
51	9.6395030	9.9542129	9.6852901	10.3147099	10.0457871	10.3604970	9
52	9.6397637	9.9541517	9.6856120	10.3143880	10.0458483	10.3602363	8
53	9.6400241	9.9540904	9.6859338	10.3140662	10.0459096	10.3599759	7
54	9.6402844	9.9540291	9.6862553	10.3137447	10.0459709	10.3597156	6
55	9.6405445	9.9539677	9.6865768	10.3134232	10.0460323	10.3594555	5
56	9.6408044	9.9539063	9.6868981	10.3131019	10.0460937	10.3591956	4
57	9.6410640	9.9538448	9.6872192	10.3127808	10.0461552	10.3589360	3
58	9.6413235	9.9537833	9.6875402	10.3124598	10.0462167	10.3586765	2
59	9.6415828	9.9537218	9.6878611	10.3121389	10.0462782	10.3584172	1
60	9.6418420	9.9536602	9.6881818	10.3118182	10.0463398	10.3581580	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

64 Degrees.

26 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.6418420	9.9536602	9.6881818	10.3118182	10.0463398	10.3581580	60
1	9.6421009	9.9535985	9.6885023	10.3114977	10.0464015	10.3578991	59
2	9.6423596	9.9535369	9.6888227	10.3111773	10.0464631	10.3576404	58
3	9.6426182	9.9534751	9.6891430	10.3108570	10.0465249	10.3573818	57
4	9.6428765	9.9534134	9.6894631	10.3105369	10.0465866	10.3571235	56
5	9.6431347	9.9533515	9.6897831	10.3102169	10.0466485	10.3568653	55
6	9.6433926	9.9532897	9.6901030	10.3098970	10.0467103	10.3566074	54
7	9.6436504	9.9532278	9.6904226	10.3095774	10.0467722	10.3563496	53
8	9.6439080	9.9531658	9.6907422	10.3092578	10.0468342	10.3560920	52
9	9.6441654	9.9531038	9.6910616	10.3089384	10.0468962	10.3558346	51
10	9.6444226	9.9530418	9.6913809	10.3086191	10.0469582	10.3555774	50
11	9.6446796	9.9529797	9.6917000	10.3083000	10.0470203	10.3553204	49
12	9.6449365	9.9529175	9.6920189	10.3079811	10.0470825	10.3550635	48
13	9.6451931	9.9528553	9.6923378	10.3076622	10.0471447	10.3548069	47
14	9.6454496	9.9527931	9.6926565	10.3073435	10.0472069	10.3545504	46
15	9.6457058	9.9527308	9.6929750	10.3070250	10.0472692	10.3542942	45
16	9.6459619	9.9526685	9.6932934	10.3067066	10.0473315	10.3540381	44
17	9.6462178	9.9526061	9.6936117	10.3063883	10.0473939	10.3537822	43
18	9.6464735	9.9525437	9.6939298	10.3060720	10.0474563	10.3535265	42
19	9.6467290	9.9524813	9.6942478	10.3057522	10.0475187	10.3532710	41
20	9.6469844	9.9524188	9.6945656	10.3054344	10.0475812	10.3530156	40
21	9.6472395	9.9523562	9.6948833	10.3051167	10.0476438	10.3527605	39
22	9.6474945	9.9522936	9.6952009	10.3047991	10.0477064	10.3525055	38
23	9.6477492	9.9522310	9.6955183	10.3044817	10.0477690	10.3522508	37
24	9.6480038	9.9521683	9.6958355	10.3041645	10.0478317	10.3519962	36
25	9.6482582	9.9521055	9.6961527	10.3038473	10.0478945	10.3517418	35
26	9.6485124	9.9520428	9.6964697	10.3035303	10.0479572	10.3514876	34
27	9.6487665	9.9519799	9.6967865	10.3032135	10.0480201	10.3512335	33
28	9.6490203	9.9519171	9.6971032	10.3028968	10.0480829	10.3509797	32
29	9.6492740	9.9518541	9.6974198	10.3025802	10.0481459	10.3507260	31
30	9.6495274	9.9517912	9.6977363	10.3022637	10.0482088	10.3504726	30
31	9.6497807	9.9517282	9.6980526	10.3019474	10.0482718	10.3502193	29
32	9.6500338	9.9516651	9.6983687	10.3016313	10.0483349	10.3499662	28
33	9.6502868	9.9516020	9.6986847	10.3013153	10.0483980	10.3497132	27
34	9.6505395	9.9515389	9.6990006	10.3009994	10.0484611	10.3494605	26
35	9.6507920	9.9514757	9.6993164	10.3006836	10.0485243	10.3492080	25
36	9.6510444	9.9514124	9.6996320	10.3003680	10.0485876	10.3489556	24
37	9.6512966	9.9513492	9.6999474	10.3000526	10.0486508	10.3487034	23
38	9.6515486	9.9512858	9.7002628	10.2997372	10.0487142	10.3484514	22
39	9.6518004	9.9512224	9.7005780	10.2994220	10.0487776	10.3481996	21
40	9.6520521	9.9511590	9.7008930	10.2991070	10.0488410	10.3479479	20
41	9.6523035	9.9510956	9.7012080	10.2987920	10.0489044	10.3476965	19
42	9.6525548	9.9510320	9.7015227	10.2984773	10.0489680	10.3474452	18
43	9.6528059	9.9509685	9.7018374	10.2981626	10.0490315	10.3471941	17
44	9.6530568	9.9509049	9.7021519	10.2978481	10.0490951	10.3469432	16
45	9.6533075	9.9508412	9.7024663	10.2975337	10.0491588	10.3466925	15
46	9.6535581	9.9507775	9.7027805	10.2972195	10.0492225	10.3464419	14
47	9.6538084	9.9507138	9.7030946	10.2969054	10.0492862	10.3461916	13
48	9.6540586	9.9506500	9.7034086	10.2965914	10.0493500	10.3459414	12
49	9.6543086	9.9505861	9.7037225	10.2962775	10.0494139	10.3456914	11
50	9.6545584	9.9505223	9.7040362	10.2959638	10.0494777	10.3454416	10
51	9.6548081	9.9504583	9.7043497	10.2956503	10.0495417	10.3451919	9
52	9.6550575	9.9503944	9.7046632	10.2953368	10.0496056	10.3449425	8
53	9.6553068	9.9503303	9.7049765	10.2950235	10.0496697	10.3446932	7
54	9.6555559	9.9502663	9.7052897	10.2947103	10.0497337	10.3444441	6
55	9.6558048	9.9502022	9.7056027	10.2943973	10.0497978	10.3441952	5
56	9.6560536	9.9501380	9.7059156	10.2940844	10.0498620	10.3439464	4
57	9.6563021	9.9500738	9.7062284	10.2937716	10.0499262	10.3436979	3
58	9.6565505	9.9500095	9.7065410	10.2934590	10.0499905	10.3434495	2
59	9.6567987	9.9499452	9.7068535	10.2931465	10.0500548	10.3432013	1
60	9.6570468	9.9498809	9.7071659	10.2928341	10.0501191	10.3429532	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

63 Degrees.

27 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.6570468	9.9498809	9.7071659	10.2928341	10.0501191	10.3449532	60
1	9.6572946	9.9498165	9.7074781	10.2925219	10.0501835	10.3427054	59
2	9.6575423	9.9497521	9.7077902	10.2922098	10.0502479	10.3424577	58
3	9.6577898	9.9496876	9.7081022	10.2918978	10.0503124	10.3422102	57
4	9.6580371	9.9496230	9.7084141	10.2915859	10.0503770	10.3419629	56
5	9.6582842	9.9495585	9.7087258	10.2912742	10.0504415	10.3417158	55
6	9.6585312	9.9494938	9.7090374	10.2909626	10.0505062	10.3414688	54
7	9.6587780	9.9494292	9.7093488	10.2906512	10.0505708	10.3412220	53
8	9.6590246	9.9493645	9.7096601	10.2903399	10.0506355	10.3409754	52
9	9.6592710	9.9492997	9.7099711	10.2900287	10.0507003	10.3407290	51
10	9.6595173	9.9492349	9.7102824	10.2897176	10.0507651	10.3404827	50
11	9.6597633	9.9491700	9.7105933	10.2894067	10.0508300	10.3402367	49
12	9.6600093	9.9491051	9.7109041	10.2890959	10.0508949	10.3399907	48
13	9.6602550	9.9490402	9.7112148	10.2887852	10.0509598	10.3397450	47
14	9.6605005	9.9489752	9.7115254	10.2884746	10.0510248	10.3394995	46
15	9.6607459	9.9489101	9.7118358	10.2881642	10 0510899	10.3392541	45
16	9.6609911	9.9488450	9.7121461	10.2878539	10.0511550	10.3390089	44
17	9.6612361	9.9487799	9.7124562	10.2875438	10.0512201	10.3387639	43
18	9.6614810	9.9487147	9.7127662	10.2872338	10.0512853	10.3385190	42
19	9.6617257	9.9486495	9.7130761	10.2869239	10.0513505	10.3382743	41
20	9.6619702	9.9485842	9.7133859	10.2866141	10.0514158	10.3380298	40
21	9.6622145	9.9485189	9.7136956	10.2863044	10.0514811	10.3377855	39
22	9.6624586	9.9484535	9.7140051	10.2859949	10.0515465	10.3375414	38
23	9.6627026	9.9483881	9.7143145	10.2856855	10.0516119	10.3372974	37
24	9.6629464	9.9483227	9.7146237	10.2853763	10.0516773	10.3370536	36
25	9.6631900	9.9482572	9.7149329	10.2850671	10.0517428	10 3368100	35
26	9.6634335	9.9481916	9.7152419	10.2847581	10.0518084	10.3365665	34
27	9.6636768	9.9481260	9.7155508	10.2844492	10.0518740	10.3363232	33
28	9.6639199	9.9480604	9.7158595	10.2841405	10.0519396	10.3360801	32
29	9.6641628	9.9479947	9.7161682	10.2838318	10.0520053	10.3358372	31
30	9.6644056	9 9479289	9.7164767	10.2835233	10.0520711	10.3355944	30
31	9.6646482	9.9478631	9.7167851	10.2832149	10.0521369	10.3353518	29
32	9.6648906	9.9477973	9.7170933	10.2829067	10.0522027	10.3351094	28
33	9.6651329	9.9477314	9.7174014	10.2825986	10.0522686	10.3348671	27
34	9.6653749	9.9476655	9.7177094	10.2822906	10.0523345	10.3346251	26
35	9.6656168	9.9475995	9.7180173	10.2819827	10.0524005	10.3343832	25
36	9.6658586	9.9475335	9.7183251	10.2816749	10.0524665	10.3341414	24
37	9.6661001	9.9474674	9.7186327	10.2813673	10.0525326	10.3338999	23
38	9.6663415	9.9474013	9.7189402	10.2810598	10.0525987	10.3336585	22
39	9.6665828	9.9473352	9.7192476	10.2807524	10.0526648	10.3334172	21
40	9.6668238	9.9472689	9.7195549	10.2804451	10.0527311	10.3331762	20
41	9.6670647	9.9472027	9.7198620	10.2801380	10.0527973	10.3329353	19
42	9.6673054	9.9471364	9.7201690	10.2798310	10.0528636	10.3326946	18
43	9.6675459	9.9470700	9.7204759	10.2795241	10.0529300	10.3324541	17
44	9.6677863	9.9470036	9.7207827	10.2792173	10.0529964	10.3322137	16
45	9.6680265	9.9469372	9.7210893	10.2789107	10.0530628	10.3319735	15
46	9.6682665	9.9468707	9.7213958	10.2786042	10.0531293	10.3317335	14
47	9.6685064	9.9468042	9.7217022	10.2782978	10.0531958	10.3314936	13
48	9.6687461	9.9467376	9.7220085	10.2779915	10.0532624	10.3312539	12
49	9.6689856	9.9466710	9.7223147	10.2776853	10.0533290	10.3310144	11
50	9.6692250	9.9466043	9.7226207	10.2773793	10.0533957	10.3307750	10
51	9.6694642	9.9465376	9.7229266	10.2770734	10.0534624	10.3305358	9
52	9.6697032	9.9464708	9.7232324	10.2767676	10.0535292	10.3302968	8
53	9.6699420	9.9464040	9.7235381	10.2764619	10.0535960	10.3300580	7
54	9.6701807	9.9463371	9.7238436	10.2761564	10.0536629	10.3298193	6
55	9.6704192	9.9462702	9.7241490	10.2758510	10.0537298	10.3295808	5
56	9.6706576	9.9462032	9.7244543	10.2755457	10.0537968	10.3293424	4
57	9.6708958	9.9461362	9.7247595	10.2752405	10.0538638	10.3291042	3
58	9.6711338	9.9460692	9.7250646	10.2749354	10.0539308	10.3288662	2
59	9.6713716	9.9460021	9.7253695	10.2746305	10.0539979	10.3286284	1
60	9.6716093	9.9459349	9.7256744	10.2743256	10.0540651	10.3283907	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

28 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.6716093	9.9459349	9.7256744	10.2743256	10.0540651	10.3283907	60
1	9.6718468	9.9458677	9.7259791	10.2740209	10.0541323	10.3281532	59
2	9.6720841	9.9458005	9.7262837	10.2737163	10.0541995	10.3279159	58
3	9.6723213	9.9457332	9.7265881	10.2734119	10.0542668	10.3276787	57
4	9.6725583	9.9456659	9.7268925	10.2731075	10.0543341	10.3274417	56
5	9.6727952	9.9455985	9.7271967	10.2728033	10.0544015	10.3272048	55
6	9.6730319	9.9455310	9.7275008	10.2724992	10.0544690	10.3269681	54
7	9.6732684	9.9454636	9.7278048	10.2721952	10.0545364	10.3267316	53
8	9.6735047	9.9453960	9.7281087	10.2718913	10.0546040	10.3264953	52
9	6.6737409	9.9453285	9.7284124	10.2715876	10.0546715	10.3262591	51
10	9.6739769	9.9452609	9.7287161	10.2712839	10.0547391	10.3260231	50
11	9.6742128	9.9451932	9.7290196	10.2709804	10.0548068	10.3257872	49
12	9.6744485	9.9451255	9.7293230	10.2706770	10.0548745	10.3255515	48
13	9.6746840	9.9450577	9.7296263	10.2703737	10.0549423	10.3253160	47
14	9.6749194	9.9449899	9.7299295	10.2700705	10.0550101	10.3250806	46
15	9.6751546	9.9449220	9.7302325	10.2697675	10.0550780	10.3248454	45
16	9.6753896	9.9448541	9.7305354	10.2694646	10.0551459	10.3246104	44
17	9.6756245	9.9447862	9.7308383	10.2691617	10.0552138	10.3243755	43
18	9.6758592	9.9447182	9.7311410	10.2688590	10.0552818	10.3241408	42
19	9.6760937	9.9446501	9.7314436	10.2685564	10.0553499	10.3239063	41
20	9.6763281	9.9445821	9.7317460	10.2682540	10.0554179	10.3236719	40
21	9.6765623	9.9445139	9.7320484	10.2679516	10.0554861	10.3234377	39
22	9.6767963	9.9444457	9.7323506	10.2676494	10.0555543	10.3232037	38
23	9.6770302	9.9443775	9.7326527	10.2673473	10.0556225	10.3229698	37
24	9.6772640	9.9443092	9.7329547	10.2670453	10.0556908	10.3227360	36
25	9.6774975	9.9442409	9.7332566	10.2667434	10.0557591	10.3225025	35
26	9.6777309	9.9441725	9.7335584	10.2664416	10.0558275	10.3222691	34
27	9.6779642	9.9441041	9.7338601	10.2661399	10.0558959	10.3220358	33
28	9.6781972	9.9440356	9.7341616	10.2658384	10.0559644	10.3218028	32
29	9.6784301	9.9439671	9.7344631	10.2655369	10.0560329	10.3215699	31
30	9.6786629	9.9438985	9.7347644	10.2652356	10.0561015	10.3213371	30
31	9.6788955	9.9438299	9.7350656	10.2649344	10.0561701	10.3211045	29
32	9.6791279	9.9437612	9.7353667	10.2646333	10.0562388	10.3208721	28
33	9.6793602	9.9436925	9.7356677	10.2643323	10.0563075	10.3206398	27
34	9.6795923	9.9436238	9.7359685	10.2640315	10.0563762	10.3204077	26
35	9.6798243	9.9435549	9.7362693	10.2637307	10.0564451	10.3201757	25
36	9.6800560	9.9434861	9.7365699	10.2634301	10.0565139	10.3199440	24
37	9.6802877	9.9434172	9.7368705	10.2631295	10.0565828	10.3197123	23
38	9.6805191	9.9433482	9.7371709	10.2628291	10.0566518	10.3194809	22
39	9.6807504	9.9432792	9.7374712	10.2625288	10.0567208	10.3192496	21
40	9.6809816	9.9432102	9.7377714	10.2622286	10.0567898	10.3190184	20
41	9.6812126	9.9431411	9.7380715	10.2619285	10.0568589	10.3187874	19
42	9.6814434	9.9430720	9.7383714	10.2616286	10.0569280	10.3185566	18
43	9.6816741	9.9430028	9.7386713	10.2613287	10.0569972	10.3183259	17
44	9.6819046	9 9429335	9.7389710	10.2610290	10.0570665	10.3180954	16
45	9.6821349	9.9428643	9.7392707	10.2607293	10.0571357	10.3178651	15
46	9.6823651	9.9427949	9.7395702	10.2604298	10.0572051	10.3176349	14
47	9.6825952	9.9427255	9.7398696	10.2601304	10.0572745	10.3174048	13
48	9.6828250	9.9426561	9.7401689	10.2598311	10.0573439	10.3171750	12
49	9.6830548	9.9425866	9.7404681	10.2595319	10.0574134	10 3169452	11
50	9.6832843	9.9425171	9.7407672	10.2592328	10.0574829	10.3167157	10
51	9.6835137	9.9424476	9.7410662	10.2589338	10.0575524	10.3164863	9
52	9.6837430	9.9423779	9.7413650	10.2586350	10.0576221	10.3162570	8
53	9.6839720	9.9423083	9.7416638	10.2583362	10.0576917	10.3160280	7
54	9.6842010	9.9422386	9.7419624	10.2580376	10.0577614	10.3157990	6
55	9.6844297	9.9421688	9.7422609	10.2577391	10.0578312	10.3155703	5
56	9.6846583	9.9420990	9.7425594	10.2574406	10.0579010	10.3153417	4
57	9.6848868	9.9420291	9.7428577	10.2571423	10.0579709	10.3151132	3
58	9.6851151	9.9419592	9.7431559	10.2568441	10.0580408	10.3148849	2
59	9.6853432	9.9418893	9.7434540	10.2565460	10.0581107	10.3146568	1
60	9.6855712	9.9418193	9.7437520	10.2562480	10.0581807	10.3144288	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

61 Degrees.

29 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.6855712	9.9418193	9.7437520	10.2562480	10.0581807	10.3144288	60
1	9.6857991	9.9417949	9.7440499	10.2559501	10.0582508	10.3142009	59
2	9.6860267	9.9417705	9.7443476	10.2556524	10.0583209	10.3139733	58
3	9.6862542	9.9417460	9.7446453	10.2553547	10.0583910	10.3137458	57
4	9.6864816	9.9417216	9.7449428	10.2550572	10.0584612	10.3135184	56
5	9.6867088	9.9416972	9.7452403	10.2547597	10.0585315	10.3132912	55
6	9.6869359	9.9416728	9.7455376	10.2544624	10.0586018	10.3130641	54
7	9.6871629	9.9416484	9.7458349	10.2541651	10.0586721	10.3128372	53
8	9.6873895	9.9416239	9.7461320	10.2538680	10.0587425	10.3126105	52
9	9.6876161	9.9415995	9.7464290	10.2535710	10.0588129	10.3123839	51
10	9.6878425	9.9415751	9.7467259	10.2532741	10.0588834	10.3121575	50
11	9.6880688	9.9415506	9.7470227	10.2529773	10.0589539	10.3119312	49
12	9.6882949	9.9415262	9.7473194	10.2526806	10.0590245	10.3117051	48
13	9.6885209	9.9415017	9.7476160	10.2523840	10.0590952	10.3114791	47
14	9.6887467	9.9414773	9.7479125	10.2520875	10.0591658	10.3112533	46
15	9.6889723	9.9414528	9.7482089	10.2517911	10.0592366	10.3110277	45
16	9.6891978	9.9414283	9.7485052	10.2514948	10.0593073	10.3108022	44
17	9.6894232	9.9414039	9.7488013	10.2511987	10.0593781	10.3105768	43
18	9.6896484	9.9413794	9.7490974	10.2509026	10.0594490	10.3103516	42
19	9.6898734	9.9413549	9.7493934	10.2506066	10.0595199	10.3101266	41
20	9.6900983	9.9413304	9.7496892	10.2503108	10.0595909	10.3099017	40
21	9.6903231	9.9413059	9.7499850	10.2500150	10.0596619	10.3096769	39
22	9.6905476	9.9412815	9.7502806	10.2497194	10.0597330	10.3094524	38
23	9.6907721	9.9412569	9.7505762	10.2494238	10.0598041	10.3092279	37
24	9.6909964	9.9412324	9.7508716	10.2491284	10.0598752	10.3090036	36
25	9.6912205	9.9412079	9.7511669	10.2488331	10.0599465	10.3087795	35
26	9.6914445	9.9411834	9.7514622	10.2485378	10.0600177	10.3085555	34
27	9.6916683	9.9411588	9.7517573	10.2482427	10.0600890	10.3083317	33
28	9.6918919	9.9411343	9.7520523	10.2479477	10.0601604	10.3081081	32
29	9.6921155	9.9411098	9.7523472	10.2476528	10.0602318	10.3078845	31
30	9.6923388	9.9410852	9.7526420	10.2473580	10.0603032	10.3076612	30
31	9.6925620	9.9410607	9.7529368	10.2470632	10.0603747	10.3074380	29
32	9.6927851	9.9410361	9.7532314	10.2467686	10.0604463	10.3072149	28
33	9.6930080	9.9410116	9.7535259	10.2464741	10.0605179	10.3069920	27
34	9.6932308	9.9409870	9.7538203	10.2461797	10.0605895	10.3067692	26
35	9.6934534	9.9409625	9.7541146	10.2458854	10.0606612	10.3065466	25
36	9.6936758	9.9409379	9.7544088	10.2455912	10.0607329	10.3063242	24
37	9.6938981	9.9409133	9.7547029	10.2452971	10.0608047	10.3061019	23
38	9.6941203	9.9408887	9.7549969	10.2450031	10.0608766	10.3058797	22
39	9.6943423	9.9408642	9.7552908	10.2447092	10.0609485	10.3056577	21
40	9.6945642	9.9408396	9.7555846	10.2444154	10.0610204	10.3054358	20
41	9.6947859	9.9408150	9.7558783	10.2441217	10.0610924	10.3052141	19
42	9.6950074	9.9407904	9.7561718	10.2438282	10.0611644	10.3049926	18
43	9.6952288	9.9407658	9.7564653	10.2435347	10.0612365	10.3047712	17
44	9.6954501	9.9407412	9.7567587	10.2432413	10.0613086	10.3045499	16
45	9.6956712	9.9407166	9.7570520	10.2429480	10.0613808	10.3043288	15
46	9.6958922	9.9406919	9.7573452	10.2426548	10.0614530	10.3041078	14
47	9.6961130	9.9406673	9.7576383	10.2423617	10.0615253	10.3038870	13
48	9.6963336	9.9406426	9.7579313	10.2420687	10.0615976	10.3036664	12
49	9.6965541	9.9406180	9.7582242	10.2417758	10.0616700	10.3034459	11
50	9.6967745	9.9405933	9.7585170	10.2414830	10.0617424	10.3032255	10
51	9.6969947	9.9405686	9.7588096	10.2411904	10.0618149	10.3030053	9
52	9.6972148	9.9405439	9.7591022	10.2408978	10.0618874	10.3027852	8
53	9.6974347	9.9405193	9.7593947	10.2406053	10.0619600	10.3025653	7
54	9.6976545	9.9404946	9.7596871	10.2403129	10.0620326	10.3023455	6
55	9.6978741	9.9404699	9.7599794	10.2400206	10.0621053	10.3021259	5
56	9.6980936	9.9404452	9.7602716	10.2397284	10.0621780	10.3019064	4
57	9.6983129	9.9404205	9.7605637	10.2394363	10.0622508	10.3016871	3
58	9.6985321	9.9403958	9.7608557	10.2391443	10.0623236	10.3014679	2
59	9.6987511	9.9403711	9.7611476	10.2388524	10.0623965	10.3012489	1
60	9.6989700	9.9403464	9.7614394	10.2385606	10.0624694	10.3010300	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

60 Degrees.

30 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.0989700	9.9375306	9.7014394	10.2985606	10.0624694	10.3010300	60
1	9.6991887	9.9374577	9.7617311	10.2382689	10.0625423	10.3008113	59
2	9.6994073	9.9373847	9.7620227	10.2379773	10.0626153	10.3005927	58
3	9.6996258	9.9373116	9.7623142	10.2376858	10.0626884	10.3003742	57
4	9.6998441	9.9372385	9.7626056	10.2373944	10.0627615	10.3001559	56
5	9.7000622	9.9371653	9.7628969	10.2371031	10.0628347	10.2999378	55
6	9.7002802	9.9370921	9.7631881	10.2368119	10.0629079	10.2997198	54
7	9.7004981	9.9370189	9.7634792	10.2365208	10.0629811	10.2995019	53
8	9.7007158	9.9369456	9.7637702	10.2362298	10.0630544	10.2992842	52
9	9.7009334	9.9368722	9.7640612	10.2359388	10.0631278	10.2990666	51
10	9.7011508	9.9367988	9.7643520	10.2356480	10.0632012	10.2988492	50
11	9.7013681	9.9367254	9.7646427	10.2353573	10.0632746	10 2986319	49
12	9.7015852	9.9366519	9.7649334	10.2350666	10.0633481	10.2984148	48
13	9.7018022	9.9365783	9.7652239	10.2347761	10.0634217	10.2981978	47
14	9.7020190	9.9365047	9.7655143	10.2344857	10.0634953	10.2979810	46
15	9.7022357	9.9364311	9.7658047	10.2341953	10.0635689	10.2977643	45
16	9.7024523	9.9363574	9.7660949	10.2339051	10.0636426	10.2975477	44
17	9.7026687	9.9362836	9.7663851	10.2336149	10.0637164	10.2973313	43
18	9.7028849	9.9362098	9.7666751	10.2333249	10.0637902	10.2971151	42
19	9.7031011	9.9361360	9.7669651	10.2330349	10.0638640	10.2968989	41
20	9.7033170	9.9360621	9.7672550	10.2327450	10.0639379	10.2966830	40
21	9.7035329	9.9359881	9.7675448	10.2324552	10.0640119	10.2964671	39
22	9.7037486	9.9359141	9.7678344	10.2321656	10.0640859	10.2962514	38
23	9.7039641	9.9358401	9.7681240	10.2318760	10.0641599	10.2960359	37
24	9.7041795	9.9357660	9.7684135	10.2315865	10.0642340	10.2958205	36
25	9.7043947	9.9356918	9.7687029	10.2312971	10.0643082	10.2956053	35
26	9.7046099	9.9356177	9.7689922	10.2310078	10.0643823	10.2953901	34
27	9.7048248	9.9355434	9.7692814	10.2307186	10.0644566	10.2951752	33
28	9.7050397	9.9354691	9.7695705	10.2304295	10.0645309	10.2949603	32
29	9.7052543	9.9353948	9.7698596	10.2301404	10.0646052	10.2947457	31
30	9.7054689	9.9353204	9.7701485	10.2298515	10.0646796	10.2945311	30
31	9.7056833	9.9352459	9.7704373	10.2295627	10.0647541	10.2943167	29
32	9.7058975	9.9351715	9.7707261	10.2292739	10.0648285	10.2941025	28
33	9.7061116	9.9350969	9.7710147	10.2289853	10.0649031	10.2938884	27
34	9.7063256	9.9350223	9.7713033	10.2286967	10.0649777	10.2936744	26
35	9.7065394	9.9349477	9.7715917	10.2284083	10.0650523	10.2934606	25
36	9.7067531	9.9348730	9.7718801	10.2281199	10.0651270	10.2932469	24
37	9.7069667	9.9347983	9.7721684	10.2278316	10.0652017	10.2930333	23
38	9.7071801	9.9347235	9.7724566	10.2275434	10.0652765	10.2928199	22
39	9.7073933	9.9346486	9.7727447	10.2272553	10.0653514	10.2926067	21
40	9.7076064	9.9345738	9.7730327	10.2269673	10.0654262	10.2923936	20
41	9.7078194	9.9344988	9.7733206	10.2266794	10.0655012	10.2921806	19
42	9.7080323	9.9344238	9.7736084	10.2263916	10.0655762	10.2919677	18
43	9.7082450	9.9343488	9.7738961	10.2261039	10.0656512	10.2917550	17
44	9.7084575	9.9342737	9.7741838	10.2258162	10.0657263	10 2915425	16
45	9.7086699	9.9341986	9.7744713	10.2255287	10.0658014	10.2913301	15
46	9.7088822	9.9341234	9.7747588	10.2252412	10.0658766	10.2911178	14
47	9.7090943	9.9340482	9.7750462	10.2249538	10.0659518	10.2909057	13
48	9.7093063	9.9339729	9.7753334	10.2246666	10.0660271	10.2906937	12
49	9.7095182	9.9338976	9.7756206	10.2243794	10.0661024	10.2904818	11
50	9.7097299	9.9338222	9.7759077	10.2240923	10.0661778	10.2902701	10
51	9.7099415	9.9337467	9.7761947	10.2238053	10.0662533	10.2900585	9
52	9.7101529	9.9336713	9.7764816	10.2235184	10.0663287	10.2898471	8
53	9.7103642	9.9335957	9.7767685	10.2232315	10.0664043	10.2896358	7
54	9.7105753	9.9335201	9.7770552	10.2229448	10.0664799	10.2894247	6
55	9.7107863	9.9334445	9.7773418	10.2226582	10.0665555	10.2892137	5
56	9.7109972	9.9333688	9.7776284	10.2223716	10.0666312	10.2890028	4
57	9.7112080	9.9332931	9.7779149	10.2220851	10.0667069	10.2887920	3
58	9.7114186	9.9332173	9.7782012	10.2217988	10.0667827	10.2885814	2
59	9.7116290	9.9331415	9.7784875	10.2215125	10.0668585	10.2883710	1
60	9.7118393	9.9330656	9.7787737	10.2212263	10.0669344	10.2881607	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

31 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7118393	9.9350656	9.7787737	10.2212263	10.0669344	10.2881607	60
1	9.7120495	9.9329897	9.7790599	10.2209401	10.0670103	10.2879505	59
2	9.7122596	9.9329137	9.7793459	10.2206541	10.0670863	10.2877404	58
3	9.7124695	9.9328376	9.7796318	10.2203682	10.0671624	10.2875305	57
4	9.7126792	9.9327616	9.7799177	10.2200823	10.0672384	10.2873208	56
5	9.7128889	9.9326854	9.7802034	10.2197966	10.0673146	10.2871111	55
6	9.7130983	9.9326092	9.7804891	10.2195109	10.0673908	10.2869017	54
7	9.7133077	9.9325330	9.7807747	10.2192253	10.0674670	10.2866923	53
8	9.7135169	9.9324567	9.7810602	10.2189398	10.0675433	10.2864831	52
9	9.7137260	9.9323804	9.7813456	10.2186544	10.0676196	10.2862740	51
10	9.7139349	9.9323040	9.7816309	10.2183691	10.0676960	10.2860651	50
11	9.7141437	9.9322276	9.7819162	10.2180838	10.0677724	10.2858563	49
12	9.7143524	9.9321511	9.7822013	10.2177987	10.0678489	10.2856476	48
13	9.7145609	9.9320746	9.7824864	10.2175136	10.0679254	10.2854391	47
14	9.7147693	9.9319980	9.7827713	10.2172287	10.0680020	10.2852307	46
15	9.7149776	9.9319213	9.7830562	10.2169438	10.0680787	10.2850224	45
16	9.7151857	9.9318447	9.7833410	10.2166590	10.0681553	10.2848143	44
17	9.7153937	9.9317679	9.7836258	10.2163742	10.0682321	10.2846063	43
18	9.7156015	9.9316911	9.7839104	10.2160896	10.0683089	10.2843985	42
19	9.7158092	9.9316143	9.7841949	10.2158051	10.0683857	10.2841908	41
20	9.7160168	9.9315374	9.7844794	10.2155206	10.0684626	10.2839832	40
21	9.7162243	9.9314605	9.7847638	10.2152362	10.0685395	10.2837757	39
22	9.7164316	9.9313835	9.7850481	10.2149519	10.0686165	10.2835684	38
23	9.7166387	9.9313065	9.7853323	10.2146677	10.0686935	10.2833613	37
24	9.7168458	9.9312294	9.7856164	10.2143836	10.0687706	10.2831542	36
25	9.7170526	9.9311522	9.7859004	10.2140996	10.0688478	10.2829474	35
26	9.7172594	9.9310750	9.7861844	10.2138156	10.0689250	10.2827406	34
27	9.7174660	9.9309978	9.7864682	10.2135318	10.0690022	10.2825340	33
28	9.7176725	9.9309205	9.7867520	10.2132480	10.0690795	10.2823275	32
29	9.7178789	9.9308432	9.7870357	10.2129643	10.0691568	10.2821211	31
30	9.7180851	9.9307658	9.7873193	10.2126807	10.0692342	10.2819149	30
31	9.7182912	9.9306883	9.7876028	10.2123972	10.0693117	10.2817088	29
32	9.7184971	9.9306109	9.7878863	10.2121137	10.0693891	10.2815029	28
33	9.7187030	9.9305333	9.7881696	10.2118304	10.0694667	10.2812970	27
34	9.7189086	9.9304557	9.7884529	10.2115471	10.0695443	10.2810914	26
35	9.7191142	9.9303781	9.7887361	10.2112639	10.0696219	10.2808858	25
36	9.7193196	9.9303004	9.7890192	10.2109808	10.0696996	10.2806804	24
37	9.7195249	9.9302226	9.7893023	10.2106977	10.0697774	10.2804751	23
38	9.7197300	9.9301448	9.7895852	10.2104148	10.0698552	10.2802700	22
39	9.7199350	9.9300670	9.7898681	10.2101319	10.0699330	10.2800650	21
40	9.7201399	9.9299891	9.7901508	10.2098492	10.0700109	10.2798601	20
41	9.7203447	9.9299112	9.7904335	10.2095665	10.0700888	10.2796553	19
42	9.7205493	9.9298332	9.7907161	10.2092839	10.0701668	10.2794507	18
43	9.7207538	9.9297551	9.7909987	10.2090013	10.0702449	10.2792462	17
44	9.7209581	9.9296770	9.7912811	10.2087189	10.0703230	10.2790419	16
45	9.7211623	9.9295989	9.7915635	10.2084365	10.0704011	10.2788377	15
46	9.7213664	9.9295207	9.7918458	10.2081542	10.0704793	10.2786336	14
47	9.7215704	9.9294424	9.7921280	10.2078720	10.0705576	10.2784296	13
48	9.7217742	9.9293641	9.7924101	10.2075899	10.0706359	10.2782258	12
49	9.7219779	9.9292857	9.7926921	10.2073079	10.0707143	10.2780221	11
50	9.7221814	9.9292073	9.7929741	10.2070259	10.0707927	10.2778189	10
51	9.7223848	9.9291289	9.7932560	10.2067440	10.0708711	10.2776152	9
52	9.7225881	9.9290504	9.7935378	10.2064622	10.0709496	10.2774119	8
53	9.7227913	9.9289718	9.7938195	10.2061805	10.0710282	10.2772087	7
54	9.7229943	9.9288932	9.7941011	10.2058989	10.0711068	10.2770057	6
55	9.7231972	9.9288145	9.7943827	10.2056173	10.0711855	10.2768028	5
56	9.7234000	9.9287358	9.7946641	10.2053359	10.0712642	10.2766000	4
57	9.7236026	9.9286571	9.7949455	10.2050545	10.0713429	10.2763974	3
58	9.7238051	9.9285783	9.7952268	10.2047732	10.0714217	10.2761949	2
59	9.7240075	9.9284994	9.7955081	10.2044919	10.0715006	10.2759925	1
60	9.7242097	9.9284205	9.7957892	10.2042108	10.0715795	10.2757903	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

32 Degrees.

M	Sine.	Co-line.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7242097	9.9284205	9.7957892	10.2042108	10.0715795	10.2757903	60
1	9.7244118	9.9283415	9.7960703	10.2039297	10.0716585	10.2755882	59
2	9.7246138	9.9282625	9.7963513	10.2036487	10.0717375	10.2753862	58
3	9.7248156	9.9281834	9.7966322	10.2033678	10.0718166	10.2751844	57
4	9.7250174	9.9281043	9.7969130	10.2030870	10.0718957	10.2749826	56
5	9.7252189	9.9280251	9.7971938	10.2028062	10.0719749	10.2747811	55
6	9.7254204	9.9279459	9.7974745	10.2025255	10.0720541	10.2745796	54
7	9.7256217	9.9278666	9.7977551	10.2022449	10.0721334	10.2743783	53
8	9.7258229	9.9277873	9.7980356	10.2019644	10.0722127	10.2741771	52
9	9.7260240	9.9277079	9.7983160	10.2016840	10.0722921	10.2739760	51
10	9.7262249	9.9276285	9.7985964	10.2014036	10.0723715	10.2737751	50
11	9.7264257	9.9275490	9.7988767	10.2011233	10.0724510	10.2735743	49
12	9.7266264	9.9274695	9.7991569	10.2008431	10.0725305	10.2733736	48
13	9.7268269	9.9273899	9.7994370	10.2005630	10.0726101	10.2731731	47
14	9.7270273	9.9273103	9.7997170	10.2002830	10.0726897	10.2729727	46
15	9.7272276	9.9272306	9.7999970	10.2000030	10.0727694	10.2727724	45
16	9.7274278	9.9271509	9.8002769	10.1997231	10.0728491	10.2725722	44
17	9.7276278	9.9270711	9.8005567	10.1994433	10.0729289	10.2723722	43
18	9.7278277	9.9269913	9.8008365	10.1991635	10.0730087	10.2721723	42
19	9.7280275	9.9269114	9.8011161	10.1988839	10.0730886	10.2719725	41
20	9.7282271	9.9268314	9.8013957	10.1986043	10.0731686	10.2717729	40
21	9.7284267	9.9267514	9.8016752	10.1983248	10.0732486	10.2715733	39
22	9.7286260	9.9266714	9.8019546	10.1980454	10.0733286	10.2713740	38
23	9.7288253	9.9265913	9.8022340	10.1977660	10.0734087	10.2711747	37
24	9.7290244	9.9265112	9.8025133	10.1974867	10.0734888	10.2709756	36
25	9.7292234	9.9264310	9.8027925	10.1972075	10.0735690	10.2707766	35
26	9.7294223	9.9263507	9.8030716	10.1969284	10.0736493	10.2705777	34
27	9.7296211	9.9262704	9.8033506	10.1966494	10.0737296	10.2703789	33
28	9.7298197	9.9261901	9.8036296	10.1963704	10.0738099	10.2701803	32
29	9.7300182	9.9261096	9.8039085	10.1960915	10.0738904	10.2699818	31
30	9.7302165	9.9260292	9.8041873	10.1958127	10.0739708	10.2697835	30
31	9.7304148	9.9259487	9.8044661	10.1955339	10.0740513	10.2695852	29
32	9.7306129	9.9258681	9.8047447	10.1952553	10.0741319	10.2693871	28
33	9.7308109	9.9257875	9.8050233	10.1949767	10.0742125	10.2691891	27
34	9.7310087	9.9257069	9.8053019	10.1946981	10.0742931	10.2689913	26
35	9.7312064	9.9256261	9.8055803	10.1944197	10.0743739	10.2687936	25
36	9.7314040	9.9255454	9.8058587	10.1941413	10.0744546	10.2685960	24
37	9.7316015	9.9254646	9.8061370	10.1938630	10.0745354	10.2683985	23
38	9.7317989	9.9253837	9.8064152	10.1935848	10.0746163	10.2682011	22
39	9.7319961	9.9253028	9.8066933	10.1933067	10.0746972	10.2680039	21
40	9.7321932	9.9252218	9.8069714	10.1930286	10.0747782	10.2678068	20
41	9.7323902	9.9251408	9.8072494	10.1927506	10.0748592	10.2676098	19
42	9.7325870	9.9250597	9.8075273	10.1924727	10.0749403	10.2674130	18
43	9.7327837	9.9249786	9.8078052	10.1921948	10.0750214	10.2672163	17
44	9.7329803	9.9248974	9.8080829	10.1919171	10.0751026	10.2670197	16
45	9.7331768	9.9248161	9.8083606	10.1916394	10.0751839	10.2668232	15
46	9.7333731	9.9247349	9.8086383	10.1913617	10.0752651	10.2666269	14
47	9.7335693	9.9246535	9.8089158	10.1910842	10.0753465	10.2664307	13
48	9.7337654	9.9245721	9.8091933	10.1908067	10.0754279	10.2662346	12
49	9.7339614	9.9244907	9.8094707	10.1905293	10.0755093	10.2660386	11
50	9.7341572	9.9244092	9.8097480	10.1902520	10.0755908	10.2658428	10
51	9.7343529	9.9243277	9.8100253	10.1899747	10.0756723	10.2656471	9
52	9.7345485	9.9242461	9.8103025	10.1896975	10.0757539	10.2654515	8
53	9.7347440	9.9241644	9.8105796	10.1894204	10.0758356	10.2652560	7
54	9.7349393	9.9240827	9.8108566	10.1891434	10.0759173	10.2650607	6
55	9.7351345	9.9240010	9.8111336	10 1888664	10.0759990	10.2648655	5
56	9.7353296	9.9239191	9.8114105	10.1885895	10.0760809	10.2646704	4
57	9.7355246	9.9238373	9.8116873	10.1883127	10.0761627	10.2644754	3
58	9.7357195	9.9237554	9.8119641	10.1880359	10.0762446	10.2642805	2
59	9.7359142	9.9236734	9.8122408	10.1877592	10.0763266	10.2640858	1
60	9.7361088	9.9235914	9.8125174	10.1874826	10.0764086	10.2638912	0
M	Co-line.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

57 Degrees.

33 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7361088	9.9235914	9.8125174	10.1874826	10.0764086	10.2638912	60
1	9.7363032	9.9235093	9.8127939	10.1872061	10.0764907	10.2636968	59
2	9.7364976	9.9234272	9.8130704	10.1869296	10.0765728	10.2635024	58
3	9.7366918	9.9233450	9.8133468	10.1866532	10.0766550	10.2633082	57
4	9.7368859	9.9232628	9.8136231	10.1863769	10.0767372	10.2631141	56
5	9.7370799	9.9231805	9.8138993	10.1861007	10.0768195	10.2629201	55
6	9.7372737	9.9230982	9.8141755	10.1858245	10.0769018	10.2627263	54
7	9.7374675	9.9230158	9.8144516	10.1855484	10.0769842	10.2625325	53
8	9.7376611	9.9229334	9.8147277	10.1852723	10.0770666	10.2623389	52
9	9.7378546	9.9228509	9.8150036	10.1849964	10.0771491	10.2621454	51
10	9.7380479	9.9227684	9.8152795	10.1847205	10.0772316	10.2619521	50
11	9.7382412	9.9226858	9.8155554	10.1844446	10.0773142	10.2617588	49
12	9.7384343	9.9226032	9.8158311	10.1841689	10.0773968	10.2615657	48
13	9.7386273	9.9225205	9.8161068	10.1838932	10.0774795	10.2613727	47
14	9.7388201	9.9224377	9.8163824	10.1836176	10.0775623	10.2611799	46
15	9.7390129	9.9223549	9.8166580	10.1833420	10.0776451	10.2609871	45
16	9.7392055	9.9222721	9.8169335	10.1830665	10.0777279	10.2607945	44
17	9.7393980	9.9221891	9.8172089	10.1827911	10.0778109	10.2606020	43
18	9.7395904	9.9221062	9.8174842	10.1825158	10.0778938	10.2604096	42
19	9.7397827	9.9220232	9.8177595	10.1822405	10.0779768	10.2602173	41
20	9.7399748	9.9219401	9.8180347	10.1819653	10.0780599	10.2600252	40
21	9.7401668	9.9218570	9.8183098	10.1816902	10.0781430	10.2598332	39
22	9.7403587	9.9217738	9.8185849	10.1814151	10.0782262	10.2596413	38
23	9.7405505	9.9216906	9.8188599	10.1811401	10.0783094	10.2594495	37
24	9.7407421	9.9216073	9.8191348	10.1808652	10.0783927	10.2592579	36
25	9.7409337	9.9215240	9.8194096	10.1805904	10.0784760	10.2590663	35
26	9.7411251	9.9214406	9.8196844	10.1803156	10.0785594	10.2588749	34
27	9.7413164	9.9213572	9.8199592	10.1800408	10.0786428	10 2586836	33
28	9.7415075	9.9212737	9.8202338	10.1797662	10.0787263	10.2584925	32
29	9.7416986	9.9211902	9.8205084	10.1794916	10.0788098	10.2583014	31
30	9.7418895	9.9211066	9.8207829	10.1792171	10 0788934	10.2581105	30
31	9.7420803	9.9210229	9.8210574	10.1789426	10.0789771	10.2579197	29
32	9.7422710	9.9209393	9.8213317	10.1786683	10.0790607	10.2577290	28
33	9.7424616	9.9208555	9.8216060	10.1783940	10.0791445	10.2575384	27
34	9.7426520	9.9207717	9.8218803	10.1781197	10.0792283	10.2573480	26
35	9.7428423	9.9206878	9 8221545	10.1778455	10.0793122	10.2571577	25
36	9.7430325	9.9206039	9.8224286	10.1775714	10.0793961	10.2569675	24
37	9.7432226	9.9205200	9.8227026	10.1772974	10.0794800	10.2567774	23
38	9.7434126	9.9204360	9.8229766	10.1770234	10.0795640	10.2565874	22
39	9.7436024	9.9203519	9.8232505	10.1767495	10.0796481	10.2563976	21
40	9 7437921	9.9202678	9.8235244	10.1764756	10.0797322	10.2562079	20
41	9.7439817	9.9201836	9.8237981	10.1762019	10.0798164	10.2560183	19
42	9.7441712	9.9200994	9.8240719	10.1759281	10.0799006	10.2558288	18
43	9.7443606	9.9200151	9.8243455	10.1756545	10.0799849	10.2556394	17
44	9.7445498	9.9199308	9.8246191	10.1753809	10.0800692	10.2554502	16
45	9.7447390	9.9198464	9.8248926	10.1751074	10.0801536	10.2552610	15
46	9.7449280	9.9197619	9.8251660	10.1748340	10.0802381	10.2550720	14
47	9.7451169	9.9196775	9.8254394	10.1745606	10.0803225	10.2548831	13
48	9.7453056	9.9195929	9.8257127	10.1742873	10.0804071	10.2546943	12
49	9.7454943	9.9195083	9.8259860	10.1740140	10.0804917	10.2545057	11
50	9.7456828	9.9194237	9.8262592	10.1737408	10.0805763	10.2543172	10
51	9.7458712	9.9193390	9.8265323	10.1734677	10.0806610	10.2541288	9
52	9.7460595	9.9192542	9.8268053	10.1731947	10.0807458	10 2539405	8
53	9.7462477	9.9191694	9.8270783	10.1729217	10.0808306	10.2537523	7
54	9.7464358	9.9190845	9.8273513	10.1726487	10.0809155	10.2535642	6
55	9.7466237	9.9189996	9.8276241	10.1723759	10.0810004	10.2533763	5
56	9.7468115	9.9189146	9.8278969	10.1721031	10.0810854	10.2531885	4
57	9.7469992	9.9188296	9.8281696	10.1718304	10.0811704	10.2530008	3
58	9.7471868	9.9187445	9.8284423	10.1715577	10.0812555	10.2528132	2
59	9.7473743	9.9186594	9.8287149	10.1712851	10.0813406	10.2526257	1
60	9.7475617	9.9185742	9.8289874	10.1710126	10.0814258	10.2524383	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

56 Degrees.

34 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7475617	9.9185742	9.8289874	10.1710126	10.0814258	10.2524383	60
1	9.7477489	9.9184890	9.8292599	10.1707401	10.0815110	10.2522511	59
2	9.7479360	9.9184037	9.8295323	10.1704677	10.0815963	10.2520640	58
3	9.7481230	9.9183183	9.8298047	10.1701953	10.0816817	10.2518770	57
4	9.7483099	9.9182329	9.8300769	10.1699231	10.0817671	10.2516901	56
5	9.7484967	9.9181475	9.8303492	10.1696508	10.0818525	10.2515033	55
6	9.7486833	9.9180620	9.8306213	10.1693787	10.0819380	10.2513167	54
7	9.7488698	9.9179764	9.8308934	10.1691056	10.0820236	10.2511302	53
8	9.7490562	9.9178908	9.8311654	10.1688346	10.0821092	10.2509438	52
9	9.7492425	9.9178051	9.8314374	10.1685626	10.0821949	10.2507575	51
10	9.7494287	9.9177194	9.8317093	10.1682907	10.0822806	10.2505713	50
11	9.7496148	9.9176336	9.8319811	10.1680189	10.0823664	10.2503852	49
12	9.7498007	9.9175478	9.8322529	10.1677471	10.0824522	10.2501993	48
13	9.7499866	9.9174619	9.8325246	10.1674754	10.0825381	10.2500134	47
14	9.7501723	9.9173760	9.8327963	10.1672037	10.0826240	10.2498277	46
15	9.7503579	9.9172900	9.8330679	10.1669321	10.0827100	10.2496421	45
16	9.7505434	9.9172040	9.8333394	10.1666606	10.0827960	10.2494566	44
17	9.7507287	9.9171179	9.8336109	10.1663891	10.0828821	10.2492713	43
18	9.7509140	9.9170317	9.8338823	10.1661177	10.0829683	10.2490860	42
19	9.7510991	9.9169456	9.8341536	10.1658464	10.0830545	10.2489009	41
20	9.7512842	9.9168593	9.8344249	10.1655751	10.0831407	10.2487158	40
21	9.7514691	9.9167730	9.8346961	10.1653039	10.0832270	10.2485309	39
22	9.7516538	9.9166866	9.8349673	10.1650327	10.0833134	10.2483462	38
23	9.7518385	9.9166002	9.8352384	10.1647616	10.0833998	10.2481615	37
24	9.7520231	9.9165137	9.8355094	10.1644906	10.0834863	10.2479769	36
25	9.7522075	9.9164272	9.8357804	10.1642196	10.0835728	10.2477925	35
26	9.7523919	9.9163406	9.8360513	10.1639487	10.0836594	10.2476081	34
27	9.7525761	9.9162539	9.8363221	10.1636779	10.0837461	10.2474239	33
28	9.7527602	9.9161673	9.8365929	10.1634071	10.0838327	10.2472398	32
29	9.7529442	9.9160805	9.8368636	10.1631364	10.0839195	10.2470558	31
30	9.7531280	9.9159937	9.8371343	10.1628657	10.0840063	10.2468720	30
31	9.7533118	9.9159069	9.8374049	10.1625951	10.0840931	10.2466882	29
32	9.7534954	9.9158200	9.8376755	10.1623245	10.0841800	10.2465046	28
33	9.7536790	9.9157330	9.8379460	10.1620540	10.0842670	10.2463210	27
34	9.7538624	9.9156460	9.8382164	10.1617836	10.0843540	10.2461376	26
35	9.7540457	9.9155588	9.8384867	10.1615133	10.0844412	10.2459543	25
36	9.7542288	9.9154718	9.8387571	10.1612429	10.0845282	10.2457712	24
37	9.7544119	9.9153846	9.8390273	10.1609727	10.0846154	10.2455881	23
38	9.7545949	9.9152974	9.8392975	10.1607025	10.0847026	10.2454051	22
39	9.7547777	9.9152101	9.8395676	10.1604324	10.0847899	10.2452223	21
40	9.7549604	9.9151228	9.8398377	10.1601623	10.0848772	10.2450396	20
41	9.7551431	9.9150354	9.8401077	10.1598923	10.0849646	10.2448569	19
42	9.7553256	9.9149479	9.8403776	10.1596224	10.0850521	10.2446744	18
43	9.7555080	9.9148604	9.8406475	10.1593525	10.0851396	10.2444920	17
44	9.7556902	9.9147729	9.8409174	10.1590826	10.0852271	10.2443098	16
45	9.7558724	9.9146852	9.8411871	10.1588129	10.0853148	10.2441276	15
46	9.7560544	9.9145976	9.8414569	10.1585431	10.0854024	10.2439456	14
47	9.7562364	9.9145099	9.8417265	10.1582735	10.0854901	10.2437636	13
48	9.7564182	9.9144221	9.8419961	10.1580039	10.0855779	10.2435818	12
49	9.7565999	9.9143342	9.8422657	10.1577343	10.0856658	10.2434001	11
50	9.7567815	9.9142464	9.8425351	10.1574649	10.0857536	10.2432185	10
51	9.7569630	9.9141584	9.8428046	10.1571954	10.0858416	10.2430370	9
52	9.7571444	9.9140704	9.8430739	10.1569261	10.0859296	10.2428556	8
53	9.7573256	9.9139824	9.8433432	10.1566568	10.0860176	10.2426744	7
54	9.7575068	9.9138943	9.8436125	10.1563875	10.0861057	10.2424932	6
55	9.7576878	9.9138061	9.8438817	10.1561183	10.0861939	10.2423122	5
56	9.7578687	9.9137179	9.8441508	10.1558492	10.0862821	10.2421313	4
57	9.7580495	9.9136296	9.8444199	10.1555801	10.0863704	10.2419505	3
58	9.7582302	9.9135413	9.8446889	10.1553111	10.0864587	10.2417698	2
59	9.7584108	9.9134530	9.8449579	10.1550421	10.0865470	10.2415892	1
60	9.7585913	9.9133645	9.8452268	10.1547732	10.0866355	10.2414087	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

55 Degrees.

35 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7585913	9.9133645	9.8452268	10.1547732	10.0866355	10.2414087	60
1	9.7587717	9.9132760	9.8454956	10.1545044	10.0867240	10.2412283	59
2	9.7589519	9.9131875	9.8457644	10.1542356	10.0868125	10.2410481	58
3	9.7591321	9.9130989	9.8460333	10.1539668	10.0869011	10.2408679	57
4	9.7593121	9.9130102	9.8463018	10.1536982	10.0869898	10.2406879	56
5	9.7594920	9.9129215	9.8465705	10.1534295	10.0870785	10.2405080	55
6	9.7596718	9.9128328	9.8468390	10.1531610	10.0871672	10.2403282	54
7	9.7598515	9.9127440	9.8471075	10.1528925	10.0872560	10.2401485	53
8	9.7600311	9.9126551	9.8473760	10.1526240	10.0873449	10.2399689	52
9	9.7602106	9.9125662	9.8476444	10.1523556	10.0874338	10.2397894	51
10	9.7603899	9.9124772	9.8479127	10.1520873	10.0875228	10.2396101	50
11	9.7605692	9.9123882	9.8481810	10.1518190	10.0876118	10.2394308	49
12	9.7607483	9.9122991	9.8484492	10.1515508	10.0877009	10.2392517	48
13	9.7609274	9.9122099	9.8487174	10.1512826	10.0877901	10.2390726	47
14	9.7611063	9.9121207	9.8489855	10.1510145	10.0878793	10.2388937	46
15	9.7612851	9.9120315	9.8492536	10.1507464	10.0879685	10.2387149	45
16	9.7614638	9.9119422	9.8495216	10.1504784	10.0880578	10.2385362	44
17	9.7616424	9.9118528	9.8497896	10.1502104	10.0881472	10.2383576	43
18	9.7618208	9.9117634	9.8500575	10.1499425	10.0882366	10.2381792	42
19	9.7619992	9.9116739	9.8503253	10.1496747	10.0883261	10.2380008	41
20	9.7621775	9.9115844	9.8505931	10.1494069	10.0884156	10.2378225	40
21	9.7623556	9.9114948	9.8508608	10.1491392	10.0885052	10.2376444	39
22	9.7625337	9.9114051	9.8511285	10.1488715	10.0885949	10.2374663	38
23	9.7627116	9.9113155	9.8513961	10.1486039	10.0886845	10.2372884	37
24	9.7628894	9.9112257	9.8516637	10.1483363	10.0887743	10.2371106	36
25	9.7630671	9.9111359	9.8519312	10.1480688	10.0888641	10 2369329	35
26	9.7632447	9.9110460	9.8521987	10.1478013	10.0889540	10.2367553	34
27	9.7634222	9.9109561	9.8524661	10.1475339	10.0890439	10.2365778	33
28	9.7635996	9.9108661	9.8527335	10.1472665	10.0891339	10.2364004	32
29	9.7637769	9.9107761	9.8530008	10.1469992	10.0892239	10.2362231	31
30	9.7639540	9 9106860	9.8532680	10.1467320	10.0893140	10.2360460	30
31	9.7641311	9.9105959	9.8535352	10.1464648	10.0894041	10.2358689	29
32	9.7643080	9.9105057	9.8538023	10.1461977	10.0894943	10.2356920	28
33	9.7644849	9.9104155	9.8540694	10.1459306	10.0895845	10.2355151	27
34	9.7646616	9.9103251	9.8543365	10.1456635	10.0896749	10.2353384	26
35	9.7648382	9.9102348	9.8546034	10.1453966	10.0897652	10.2351618	25
36	9.7650147	9.9101444	9.8548704	10.1451296	10.0898556	10.2349853	24
37	9.7651911	9.9100539	9.8551372	10.1448628	10.0899461	10.2348089	23
38	9.7653674	9.9099634	9.8554041	10.1445959	10.0900366	10.2346326	22
39	9.7655436	9.9098728	9.8556708	10.1443292	10.0901272	10.2344564	21
40	9.7657197	9.9097821	9.8559376	10.1440624	10.0902179	10.2342803	20
41	9.7658957	9.9096915	9.8562042	10.1437958	10.0903085	10.2341043	19
42	9.7660715	9.9096007	9.8564708	10.1435292	10.0903993	10.2339285	18
43	9.7662473	9.9095099	9.8567374	10.1432626	10.0904901	10.2337527	17
44	9.7664229	9.9094190	9.8570039	10.1429961	10.0905810	10.2335771	16
45	9.7665985	9.9093281	9.8572704	10.1427296	10.0906719	10.2334015	15
46	9.7667739	9.9092371	9.8575368	10.1424632	10.0907629	10.2332261	14
47	9.7669492	9.9091461	9.8578031	10.1421969	10.0908539	10.2330508	13
48	9.7671244	9.9090550	9.8580694	10.1419306	10.0909450	10.2328756	12
49	9.7672996	9.9089639	9.8583357	10.1416643	10.0910361	10.2327004	11
50	9.7674746	9.9088727	9.8586019	10.1413981	10.0911273	10.2325254	10
51	9.7676494	9.9087814	9.8588680	10.1411320	10.0912186	10.2323506	9
52	9.7678242	9.9086901	9.8591341	10.1408659	10.0913099	10.2321758	8
53	9.7679989	9.9085988	9.8594002	10.1405998	10.0914012	10.2320011	7
54	9.7681735	9.9085073	9.8596661	10.1403339	10.0914927	10.2318265	6
55	9.7683480	9.9084159	9.8599321	10.1400679	10.0915841	10.2316520	5
56	9.7685223	9.9083243	9.8601980	10.1398020	10.0916757	10.2314777	4
57	9.7686966	9.9082327	9.8604638	10.1395362	10.0917673	10.2313034	3
58	9.7688707	9.9081411	9.8607296	10.1392704	10.0918589	10.2311293	2
59	9.7690448	9.9080494	9.8609954	10.1390046	10.0919506	10.2309552	1
60	9.7692187	9.9079576	9.8612610	10.1387390	10.0920424	10.2307813	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

54 Degrees.

36 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7692187	9.9079576	9.8612610	10.1387390	10.0920424	10.2307813	60
1	9.7693925	9.9078658	9.8615267	10.1384733	10.0921342	10.2306075	59
2	9.7695662	9.9077740	9.8617923	10.1382077	10.0922260	10.2304338	58
3	9.7697398	9.9076820	9.8620578	10.1379422	10.0923180	10.2302602	57
4	9.7699134	9.9075901	9.8623233	10.1376767	10.0924099	10.2300866	56
5	9.7700868	9.9074980	9.8625887	10.1374113	10.0925020	10.2299132	55
6	9.7702601	9.9074059	9.8628541	10.1371459	10.0925941	10.2297399	54
7	9.7704331	9.9073138	9.8631195	10.1368805	10.0926862	10.2295668	53
8	9.7706063	9.9072216	9.8633848	10.1366152	10.0927784	10.2293937	52
9	9.7707793	9.9071293	9.8636500	10.1363500	10.0928707	10.2292207	51
10	9.7709522	9.9070370	9.8639152	10.1360848	10.0929630	10.2290478	50
11	9.7711249	9.9069446	9.8641803	10.1358197	10.0930554	10 2288751	49
12	9.7712976	9.9068522	9.8644454	10.1355546	10.0931478	10.2287024	48
13	9.7714702	9.9067597	9.8647105	10.1352895	10.0932403	10.2285298	47
14	9.7716426	9.9066671	9.8649755	10.1350245	10.0933329	10.2283574	46
15	9.7718150	9.9065745	9.8652404	10.1347596	10.0934255	10.2281850	45
16	9.7719872	9.9064819	9.8655053	10.1344947	10.0935181	10.2280128	44
17	9.7721593	9.9063892	9.8657702	10.1342298	10.0936108	10.2278407	43
18	9.7723314	9.9062964	9.8660350	10.1339650	10.0937036	10.2276686	42
19	9.7725033	9.9062036	9.8662997	10.1337003	10.0937964	10.2274967	41
20	9.7726751	9.9061107	9.8665644	10.1334356	10.0938893	10.2273249	40
21	9.7728468	9.9060177	9.8668291	10.1331709	10.0939823	10.2271532	39
22	9.7730185	9.9059247	9.8670937	10.1329063	10.0940753	10.2269815	38
23	9.7731900	9.9058317	9.8673583	10.1326417	10.0941683	10.2268100	37
24	9.7733614	9.9057386	9.8676228	10.1323772	10.0942614	10.2266386	36
25	9.7735327	9.9056454	9.8678873	10.1321127	10.0943546	10.2264673	35
26	9.7737039	9.9055522	9.8681517	10.1318483	10.0944478	10.2262961	34
27	9.7738749	9.9054589	9.8684160	10.1315840	10.0945411	10.2261251	33
28	9.7740459	9.9053656	9.8686804	10.1313196	10.0946344	10.2259541	32
29	9.7742168	9.9052722	9.8689446	10.1310554	10.0947278	10.2257832	31
30	9.7743876	9.9051787	9.8692089	10.1307911	10.0948213	10.2256124	30
31	9.7745583	9.9050852	9.8694731	10.1305269	10.0949148	10.2254417	29
32	9.7747288	9.9049916	9.8697372	10.1302628	10.0950084	10.2252712	28
33	9.7748993	9.9048980	9.8700013	10.1299987	10.0951020	10.2251007	27
34	9.7750697	9.9048043	9.8702653	10.1297347	10.0951957	10.2249303	26
35	9.7753399	9.9047106	9.8705293	10.1294707	10.0952894	10.2247601	25
36	9.7754101	9.9046168	9.8707933	10.1292067	10.0953832	10.2245899	24
37	9.7755801	9.9045230	9.8710572	10.1289428	10.0954770	10.2244199	23
38	9.7757501	9.9044291	9.8713210	10.1286790	10.0955709	10.2242499	22
39	9.7759199	9.9043351	9.8715848	10.1284152	10.0956649	10.2240801	21
40	9.7760897	9.9042411	9.8718486	10.1281514	10.0957589	10.2239103	20
41	9.7762593	9.9041470	9.8721123	10.1278877	10.0958530	10.2237407	19
42	9.7764289	9.9040529	9.8723760	10.1276240	10.0959471	10.2235711	18
43	9.7765983	9.9039587	9.8726396	10.1273604	10.0960413	10.2234017	17
44	9.7767676	9.9038644	9.8729032	10.1270968	10.0961356	10.2232324	16
45	9.7769369	9.9037701	9.8731668	10.1268332	10.0962299	10.2230631	15
46	9.7771060	9.9036757	9.8734302	10.1265698	10.0963243	10.2228940	14
47	9.7772750	9.9035813	9.8736937	10.1263063	10.0964187	10.2227250	13
48	9.7774439	9.9034868	9.8739571	10.1260429	10.0965132	10.2225561	12
49	9.7776128	9.9033923	9.8742204	10.1257796	10.0966077	10.2223872	11
50	9.7777815	9.9032977	9.8744838	10.1255162	10.0967023	10.2222185	10
51	9.7779501	9.9032031	9.8747470	10.1252530	10.0967969	10.2220499	9
52	9.7781186	9.9031084	9.8750102	10.1249898	10.0968916	10.2218814	8
53	9.7782870	9.9030136	9.8752734	10.1247266	10.0969864	10.2217130	7
54	9.7784553	9.9029188	9.8755365	10.1244635	10.0970812	10.2215447	6
55	9.7786235	9.9028239	9.8757996	10.1242004	10.0971761	10.2213765	5
56	9.7787916	9.9027289	9.8760627	10.1239373	10.0972711	10.2212084	4
57	9.7789596	9.9026339	9.8763257	10.1236743	10.0973661	10.2210404	3
58	9.7791275	9.9025389	9.8765886	10.1234114	10.0974611	10.2208725	2
59	9.7792953	9.9024438	9.8768515	10.1231485	10.0975562	10.2207047	1
60	9.7794630	9.9023486	9.8771144	10.1228856	10.0976514	10.2205370	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

53 Degrees.

37 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7794032	9.9023486	9.8771144	10.1228856	10.0976514	10.2205370	60
1	9.7796306	9.9022534	9.8773772	10.1226228	10.0977466	10.2203694	59
2	9.7797981	9.9021581	9.8776400	10.1223600	10.0978419	10.2202019	58
3	9.7799655	9.9020628	9.8779027	10.1220973	10.0979372	10.2200345	57
4	9.7801328	9.9019674	9.8781654	10.1218346	10.0980326	10.2198672	56
5	9.7803000	9.9018719	9.8784281	10.1215719	10.0981281	10.2197000	55
6	9.7804671	9.9017764	9.8786907	10.1213093	10.0982236	10.2195329	54
7	9.7806341	9.9016808	9.8789533	10.1210467	10.0983192	10.2193659	53
8	9.7808010	9.9015852	9.8792158	10.1207842	10.0984148	10.2191990	52
9	9.7809677	9.9014895	9.8794782	10.1205218	10.0985105	10.2190323	51
10	9.7811344	9.9013938	9.8797407	10.1202593	10.0986062	10.2188656	50
11	9.7813010	9.9012980	9.8800031	10.1199969	10.0987020	10.2186990	49
12	9.7814675	9.9012021	9.8802654	10.1197346	10.0987979	10.2185325	48
13	9.7816339	9.9011062	9.8805277	10.1194723	10.0988938	10.2183661	47
14	9.7818002	9.9010102	9.8807900	10.1192100	10.0989898	10.2181998	46
15	9.7819664	9.9009142	9.8810522	10.1189478	10.0990858	10.2180336	45
16	9.7821324	9.9008181	9.8813144	10.1186856	10.0991819	10.2178676	44
17	9.7822984	9.9007219	9.8815756	10.1184235	10.0992781	10.2177016	43
18	9.7824643	9.9006257	9.8818386	10.1181614	10.0993743	10.2175357	42
19	9.7826301	9.9005294	9.8821007	10.1178993	10.0994706	10.2173699	41
20	9.7827958	9.9004331	9.8823627	10.1176373	10.0995669	10.2172042	40
21	9.7829614	9.9003367	9.8826246	10.1173754	10.0996633	10.2170386	39
22	9.7831268	9.9002403	9.8828866	10.1171134	10.0997597	10.2168732	38
23	9.7832922	9.9001438	9.8831484	10.1168516	10.0998562	10.2167078	37
24	9.7834575	9.8900472	9.8834103	10.1165897	10.0999528	10.2165425	36
25	9.7836227	9.8999506	9.8836721	10.1163279	10.1000494	10.2163773	35
26	9.7837878	9.8998539	9.8839338	10.1160662	10.1001461	10.2162122	34
27	9.7839528	9.8997572	9.8841956	10.1158044	10.1002428	10.2160472	33
28	9.7841177	9.8996604	9.8844572	10.1155428	10.1003396	10.2158823	32
29	9.7842824	9.8995636	9.8847189	10.1152811	10.1004364	10.2157176	31
30	9.7844471	9.8994667	9.8849805	10.1150195	10.1005333	10.2155529	30
31	9.7846117	9.8993697	9.8852420	10.1147580	10.1006303	10.2153883	29
32	9.7847762	9.8992727	9.8855035	10.1144965	10.1007273	10.2152238	28
33	9.7849406	9.8991756	9.8857650	10.1142350	10.1008244	10.2150594	27
34	9.7851049	9.8990784	9.8860264	10.1139736	10.1009216	10.2148951	26
35	9.7852691	9.8989812	9.8862878	10.1137122	10.1010188	10.2147309	25
36	9.7854332	9.8988840	9.8865492	10.1134508	10.1011160	10.2145668	24
37	9.7855972	9.8987867	9.8868105	10.1131895	10.1012133	10.2144028	23
38	9.7857611	9.8986893	9.8870718	10.1129282	10.1013107	10.2142389	22
39	9.7859249	9.8985919	9.8873330	10.1126670	10.1014081	10.2140751	21
40	9.7860886	9.8984944	9.8875942	10.1124058	10.1015056	10.2139114	20
41	9.7862522	9.8983968	9.8878554	10.1121446	10.1016032	10.2137478	19
42	9.7864157	9.8982992	9.8881165	10.1118835	10.1017008	10.2135843	18
43	9.7865791	9.8982015	9.8883775	10.1116225	10.1017985	10.2134209	17
44	9.7867424	9.8981038	9.8886386	10.1113614	10.1018962	10.2132576	16
45	9.7869056	9.8980060	9.8888996	10.1111004	10.1019940	10.2130944	15
46	9.7870687	9.8979082	9.8891605	10.1108395	10.1020918	10.2129313	14
47	9.7872317	9.8978103	9.8894214	10.1105786	10.1021897	10.2127683	13
48	9.7873946	9.8977123	9.8896823	10.1103177	10.1022877	10.2126054	12
49	9.7875574	9.8976143	9.8899432	10.1100568	10.1023857	10.2124426	11
50	9.7877202	9.8975162	9.8902040	10.1097960	10.1024838	10.2122798	10
51	9.7878828	9.8974181	9.8904647	10.1095353	10.1025819	10.2121172	9
52	9.7880453	9.8973199	9.8907254	10.1092746	10.1026801	10.2119547	8
53	9.7882077	9.8972216	9.8909861	10.1090139	10.1027784	10.2117923	7
54	9.7883701	9.8971233	9.8912468	10.1087532	10.1028767	10.2116299	6
55	9.7885323	9.8970249	9.8915074	10.1084926	10.1029751	10.2114677	5
56	9.7886944	9.8969265	9.8917679	10.1082321	10.1030735	10.2113056	4
57	9.7888565	9.8968280	9.8920285	10.1079715	10.1031720	10.2111435	3
58	9.7890184	9.8967294	9.8922890	10.1077110	10.1032706	10.2109816	2
59	9.7891808	9.8966308	9.8924594	10.1074506	10.1033692	10.2108198	1
60	9.7893420	9.8965321	9.8928098	10.1071902	10.1034679	10.2106580	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

52 Degrees.

38 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7893420	9.8965321	9.8928098	10.1071902	10.1034679	10.2106580	60
1	9.7895036	9.8964334	9.8930702	10.1069298	10.1035666	10.2104964	59
2	9.7896652	9.8963346	9.8933306	10.1066694	10.1036654	10.2103348	58
3	9.7898266	9.8962358	9.8935909	10.1064091	10.1037642	10.2101734	57
4	9.7899880	9.8961369	9.8938511	10.1061489	10.1038631	10.2100120	56
5	9.7901493	9.8960379	9.8941114	10.1058886	10.1039621	10.2098507	55
6	9.7903104	9.8959389	9.8943715	10.1056285	10.1040611	10.2096896	54
7	9.7904715	9.8958398	9.8946317	10.1053683	10.1041602	10.2095285	53
8	9.7906325	9.8957406	9.8948918	10.1051082	10.1042594	10.2093675	52
9	9.7907933	9.8956414	9.8951519	10.1048481	10.1043586	10.2092067	51
10	9.7909541	9.8955422	9.8954119	10.1045881	10.1044578	10.2090459	50
11	9.7911148	9.8954429	9.8956719	10.1043281	10.1045571	10.2088852	49
12	9.7912754	9.8953435	9.8959319	10.1040681	10.1046565	10.2087246	48
13	9.7914359	9.8952440	9.8961918	10.1038082	10.1047560	10.2085641	47
14	9.7915963	9.8951445	9.8964517	10.1035483	10.1048555	10.2084037	46
15	9.7917566	9.8950450	9.8967116	10.1032884	10.1049550	10.2082434	45
16	9.7919168	9.8949453	9.8969714	10.1030286	10.1050547	10.2080832	44
17	9.7920769	9.8948457	9.8972312	10.1027688	10.1051543	10.2079231	43
18	9.7922369	9.8947459	9.8974910	10.1025090	10.1052541	10.2077631	42
19	9.7923968	9.8946461	9.8977507	10.1022493	10.1053539	10.2076032	41
20	9.7925566	9.8945463	9.8980104	10.1019896	10.1054537	10.2074434	40
21	9.7927163	9.8944463	9.8982700	10.1017300	10.1055537	10.2072837	39
22	9.7928760	9.8943464	9.8985296	10.1014704	10.1056536	10.2071240	38
23	9.7930355	9.8942463	9.8987892	10.1012108	10.1057537	10.2069645	37
24	9.7931949	9.8941462	9.8990487	10.1009513	10.1058538	10.2068051	36
25	9.7933543	9.8940461	9.8993082	10.1006918	10.1059539	10.2066457	35
26	9.7935135	9.8939458	9.8995677	10.1004323	10.1060542	10.2064865	34
27	9.7936727	9.8938456	9.8998271	10.1001729	10.1061544	10.2063273	33
28	9.7938317	9.8937452	9.9000865	10.0999135	10.1062548	10.2061683	32
29	9.7939907	9.8936448	9.9003459	10.0996541	10.1063552	10.2060093	31
30	9.7941496	9.8935444	9.9006052	10.0993948	10.1064556	10.2058504	30
31	9.7943083	9.8934439	9.9008645	10.0991355	10.1065561	10.2056917	29
32	9.7944670	9.8933433	9.9011237	10.0988763	10.1066567	10.2055330	28
33	9.7946256	9.8932426	9.9013830	10.0986170	10.1067574	10.2053744	27
34	9.7947841	9.8931419	9.9016422	10.0983578	10.1068581	10.2052159	26
35	9.7949425	9.8930412	9.9019013	10.0980987	10.1069588	10.2050575	25
36	9.7951008	9.8929404	9.9021604	10.0978396	10.1070596	10.2048992	24
37	9.7952590	9.8928395	9.9024195	10.0975805	10.1071605	10.2047410	23
38	9.7954171	9.8927385	9.9026786	10.0973214	10.1072615	10.2045829	22
39	9.7955751	9.8926375	9.9029376	10.0970624	10.1073625	10.2044249	21
40	9.7957330	9.8925365	9.9031966	10.0968034	10.1074635	10.2042670	20
41	9.7958909	9.8924354	9.9034555	10.0965445	10.1075646	10.2041091	19
42	9.7960486	9.8923342	9.9037144	10.0962856	10.1076658	10.2039514	18
43	9.7962062	9.8922329	9.9039733	10.0960267	10.1077671	10.2037938	17
44	9.7963638	9.8921316	9.9042321	10.0957679	10.1078684	10.2036362	16
45	9.7965212	9.8920303	9.9044910	10.0955090	10.1079697	10.2034788	15
46	9.7966786	9.8919287	9.9047497	10.0952503	10.1080711	10.2033214	14
47	9.7968359	9.8918274	9.9050085	10.0949915	10.1081726	10.2031641	13
48	9.7969930	9.8917258	9.9052672	10.0947328	10.1082742	10.2030070	12
49	9.7971501	9.8916242	9.9055259	10.0944741	10.1083758	10.2028499	11
50	9.7973071	9.8915226	9.9057845	10.0942155	10.1084774	10.2026929	10
51	9.7974640	9.8914208	9.9060431	10.0939569	10.1085792	10.2025360	9
52	9.7976208	9.8913191	9.9063017	10.0936983	10.1086809	10.2023792	8
53	9.7977775	9.8912172	9.9065603	10.0934397	10.1087828	10.2022225	7
54	9.7979341	9.8911153	9.9068188	10.0931812	10.1088847	10.2020659	6
55	9.7980906	9.8910133	9.9070773	10.0929227	10.1089867	10.2019094	5
56	9.7982470	9.8909113	9.9073357	10.0926643	10.1090887	10.2017530	4
57	9.7984034	9.8908092	9.9075941	10.0924059	10.1091908	10.2015966	3
58	9.7985596	9.8907071	9.9078525	10.0921475	10.1092929	10.2014404	2
59	9.7987158	9.8906049	9.9081109	10.0918891	10.1093951	10.2012842	1
60	9.7988718	9.8905026	9.9083692	10.0916308	10.1094974	10.2011282	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

51 Degrees.

39 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.7988718	9.8905026	9.9083692	10.0916308	10.1094974	10.2011282	60
1	9.7990278	9.8904003	9.9086275	10.0913725	10.1095997	10.2009722	59
2	9.7991836	9.8902979	9.9088858	10.0911142	10.1097021	10.2008164	58
3	9.7993394	9.8901954	9.9091440	10.0908560	10.1098046	10.2006606	57
4	9.7994951	9.8900929	9.9094022	10.0905978	10.1099071	10.2005049	56
5	9.7996507	9.8899903	9.9096603	10.0903397	10.1100097	10.2003493	55
6	9.7998062	9.8898877	9.9099185	10.0900815	10.1101123	10.2001938	54
7	9.7999616	9.8897850	9.9101766	10.0898234	10.1102150	10.2000384	53
8	9.8001169	9.8896822	9.9104347	10.0895653	10.1103178	10.1998831	52
9	9.8002721	9.8895794	9.9106927	10.0893073	10.1104206	10.1997279	51
10	9.8004272	9.8894765	9.9109507	10.0890493	10.1105235	10.1995728	50
11	9.8005823	9.8893736	9.9112087	10.0887913	10.1106264	10.1994177	49
12	9.8007372	9.8892706	9.9114666	10.0885334	10.1107294	10.1992628	48
13	9.8008921	9.8891675	9.9117245	10.0882755	10.1108325	10.1991079	47
14	9.8010468	9.8890644	9.9119824	10.0880176	10.1109356	10.1989532	46
15	9.8012015	9.8889612	9.9122403	10.0877597	10.1110388	10.1987985	45
16	9.8013561	9.8888580	9.9124981	10.0875019	10.1111420	10.1986439	44
17	9.8015106	9.8887547	9.9127559	10.0872441	10.1112453	10.1984894	43
18	9.8016649	9.8886513	9.9130137	10.0869863	10.1113487	10.1983351	42
19	9.8018192	9.8885479	9.9132714	10.0867286	10.1114521	10.1981808	41
20	9.8019735	9.8884444	9.9135291	10.0864709	10.1115556	10.1980265	40
21	9.8021276	9.8883408	9.9137868	10.0862132	10.1116592	10.1978724	39
22	9.8022816	9.8882372	9.9140444	10.0859556	10.1117628	10.1977184	38
23	9.8024355	9.8881335	9.9143020	10.0856980	10.1118665	10.1975645	37
24	9.8025894	9.8880298	9.9145596	10.0854404	10.1119702	10.1974106	36
25	9.8027431	9.8879260	9.9148171	10.0851829	10.1120740	10.1972569	35
26	9.8028968	9.8878221	9.9150747	10.0849253	10.1121779	10.1971032	34
27	9.8030504	9.8877182	9.9153322	10.0846678	10.1122818	10.1969496	33
28	9.8032038	9.8876142	9.9155896	10.0844104	10.1123858	10.1967962	32
29	9.8033572	9.8875102	9.9158471	10.0841529	10.1124898	10.1966428	31
30	9.8035105	9.8874061	9.9161045	10.0838955	10.1125939	10.1964895	30
31	9.8036637	9.8873019	9.9163618	10.0836382	10.1126981	10.1963363	29
32	9.8038168	9.8871977	9.9166192	10.0833808	10.1128023	10.1961832	28
33	9.8039699	9.8870934	9.9168765	10.0831235	10.1129066	10.1960301	27
34	9.8041228	9.8869890	9.9171338	10.0828662	10.1130110	10.1958772	26
35	9.8042757	9.8868846	9.9173911	10.0826089	10.1131154	10.1957243	25
36	9.8044284	9.8867801	9.9176483	10.0823517	10.1132199	10.1955716	24
37	9.8045811	9.8866756	9.9179055	10.0820945	10.1133244	10.1954189	23
38	9.8047336	9.8865710	9.9181627	10.0818373	10.1134290	10.1952664	22
39	9.8048861	9.8864663	9.9184198	10.0815802	10.1135337	10.1951139	21
40	9.8050385	9.8863616	9.9186769	10.0813231	10.1136384	10.1949615	20
41	9.8051908	9.8862568	9.9189340	10.0810660	10.1137432	10.1948092	19
42	9.8 53430	9.8861519	9.9191911	10.0808089	10.1138481	10.1946570	18
43	9.8054951	9.8860470	9.9194481	10.0805519	10.1139530	10.1945049	17
44	9.8056472	9.8859420	9.9197051	10.0802949	10.1140580	10.1943528	16
45	9.8057991	9.8858370	9.9199621	10.0800379	10.1141630	10.1942009	15
46	9.8059510	9.8857319	9.9202191	10.0797809	10.1142681	10.1940490	14
47	9.8061027	9.8856267	9.9204760	10.0795240	10.1143733	10.1938973	13
48	9.8062544	9.8855215	9.9207329	10.0792671	10.1144785	10.1937456	12
49	9.8064060	9.8854162	9.9209898	10.0790102	10.1145838	10.1935940	11
50	9.8065575	9.8853109	9.9212466	10.0787534	10.1146891	10.1934425	10
51	9.8067089	9.8852055	9.9215034	10.0784966	10.1147945	10.1932911	9
52	9.8068602	9.8851000	9.9217602	10.0782398	10.1149000	10.1931398	8
53	9.8070114	9.8849945	9.9220170	10.0779830	10.1150055	10.1929886	7
54	9.8071626	9.8848889	9.9222737	10.0777263	10.1151111	10.1928374	6
55	9.8073136	9.8847832	9.9225304	10.0774696	10.1152168	10.1926864	5
56	9.8074646	9.8846775	9.9227871	10.0772129	10.1153225	10.1925354	4
57	9.8076154	9.8845717	9.9230437	10.0769563	10.1154283	10.1923846	3
58	9.8077662	9.8844659	9.9233004	10.0766996	10.1155341	10.1922338	2
59	9.8079169	9.8843599	9.9235570	10.0764430	10.1156401	10.1920831	1
60	9.8080675	9.8842540	9.9238135	10.0761865	10.1157460	10.1919325	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

50 Degrees.

40 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.8080675	9.8842540	9.9238135	10.0761865	10. 1157460	10.1917325	60
1	9.8082180	9.8841479	9.9240701	10.0759299	10.1158521	10.1917820	59
2	9.8083684	9.8840418	9.9243266	10.0756734	10.1159582	10.1916316	58
3	9.8085188	9.8839357	9.9245831	10.0754169	10.1160643	10.1914812	57
4	9.8086690	9.8838294	9.9248396	10.0751604	10.1161706	10.1913310	56
5	9.8088192	9.8837232	9.9250960	10.0749040	10.1162768	10.1911808	55
6	9.8089692	9.8836168	9.9253524	10.0746476	10.1163832	10.1910308	54
7	9.8091192	9.8835104	9.9256088	10.0743912	10.1164896	10.1908808	53
8	9.8092691	9.8834039	9.9258652	10.0741348	10.1165961	10.1907309	52
9	9.8094189	9.8832974	9.9261215	10.0738785	10.1167026	10.1905811	51
10	9.8095686	9.8831908	9.9263778	10.0736222	10.1168092	10.1904314	50
11	9.8097182	9.8830841	9.9266341	10.0733659	10.1169159	10.1902818	49
12	9.8098678	9.8829774	9.9268904	10.0731096	10.1170226	10.1901322	48
13	9.8100172	9.8828706	9.9271466	10.0728534	10.1171294	10.1899828	47
14	9.8101666	9.8827638	9.9274028	10.0725972	10.1172362	10.1898334	46
15	9.8103159	9.8826568	9.9276590	10.0723410	10.1173432	10.1896841	45
16	9.8104650	9.8825499	9.9279152	10.0720848	10.1174501	10.1895350	44
17	9.8106141	9.8824428	9.9281713	10.0718287	10.1175572	10.1893859	43
18	9.8107631	9.8823357	9.9284274	10.0715726	10.1176643	10.1892369	42
19	9.8109121	9.8822285	9.9286835	10.0713165	10.1177715	10.1890879	41
20	9.8110609	9.8821213	9.9289396	10.0710604	10.1178787	10.1889391	40
21	9.8112096	9.8820140	9.9291956	10.0708044	10.1179860	10.1887904	39
22	9.8113583	9.8819067	9.9294516	10.0705484	10.1180933	10.1886417	38
23	9.8115069	9.8817992	9.9297076	10.0702924	10.1182008	10.1884931	37
24	9.8116554	9.8816918	9.9299636	10.0700364	10.1183082	10.1883446	36
25	9.8118038	9.8815842	9.9302195	10.0697805	10.1184158	10.1881962	35
26	9.8119521	9.8814766	9.9304755	10.0695245	10.1185234	10.1880479	34
27	9.8121003	9.8813689	9.9307314	10.0692686	10.1186311	10.1878997	33
28	9.8122484	9.8812612	9.9309872	10.0690128	10.1187388	10.1877516	32
29	9.8123965	9.8811534	9.9312431	10.0687569	10.1188466	10.1876035	31
30	9.8125444	9.8810455	9.9314989	10.0685011	10.1189545	10.1874556	30
31	9.8126923	9.8809376	9.9317547	10.0682453	10.1190624	10.1873077	29
32	9.8128401	9.8808296	9.9320105	10.0679895	10.1191704	10.1871599	28
33	9.8129878	9.8807215	9.9322662	10.0677338	10.1192785	10.1870122	27
34	9.8131354	9.8806134	9.9325220	10.0674780	10.1193866	10.1868646	26
35	9 8132829	9.8805052	9.9327777	10.0672223	10.1194948	10.1867171	25
36	9.8134303	9.8803970	9.9330334	10.0669666	10.1196030	10.1865697	24
37	9.8135777	9.8802887	9.9332890	10.0667110	10.1197113	10.1864223	23
38	9.8137250	9.8801803	9.9335446	10.0664554	10.1198197	10.1862750	22
39	9.8138721	9.8800719	9.9338003	10.0661997	10.1199281	10.1861279	21
40	9.8140192	9.8799634	9.9340559	10.0659441	10.1200366	10.1859808	20
41	9.8141662	9.8798548	9.9343114	10.0656886	10.1201452	10.1858338	19
42	9.8143131	9.8797462	9.9345670	10.0654330	10.1202538	10.1856869	18
43	9.8144600	9.8796375	9.9348225	10.0651775	10.1203625	10.1855400	17
44	9.8146067	9.8795287	9.9350780	10.0649220	10.1204713	10.1853933	16
45	9.8147534	9.8794199	9.9353335	10.0646665	10.1205801	10.1852466	15
46	9.8148999	9.8793110	9.9355889	10.0644111	10.1206890	10.1851001	14
47	9.8150464	9.8792021	9.9358444	10.0641556	10.1207979	10.1849536	13
48	9.8151928	9.8790930	9.9360998	10.0639002	10.1209070	10.1848072	12
49	9.8153391	9.8789840	9.9363552	10.0636448	10.1210160	10.1846609	11
50	9.8154854	9.8788748	9.9366105	10.0633895	10.1211252	10.1845146	10
51	9.8156315	9.8787656	9.9368659	10.0631341	10.1212344	10.1843685	9
52	9.8157776	9.8786563	9.9371212	10.0628788	10.1213437	10.1842224	8
53	9.8159235	9.8785470	9.9373765	10.0626235	10.1214530	10.1840765	7
54	9.8160694	9.8784376	9.9376318	10.0623682	10.1215624	10.1839306	6
55	9.8162152	9.8783281	9.9378871	10.0621129	10.1216719	10.1837848	5
56	9.8163609	9.8782186	9.9381423	10.0618577	10.1217814	10.1836391	4
57	9.8165066	9.8781090	9.9383975	10.0616025	10.1218910	10.1834934	3
58	9.8166521	9.8779994	9.9386527	10.0613473	10.1220006	10.1833479	2
59	9.8167975	9.8778896	9.9389079	10.0610921	10 1221104	10.1832025	1
60	9.8169429	9.8777799	9.9391631	10.0608369	10.1222201	10.1830571	0
M.	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

49 Degrees.

41 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.8109429	9.8777797	9.9391631	10.0608369	10.1222201	10.1830571	60
1	9.8170882	9.8776700	9.9394182	10.0605818	10.1223300	10.1829118	59
2	9.8172334	9.8775601	9.9396733	10.0603267	10.1224399	10.1827666	58
3	9.8173785	9.8774501	9.9399284	10.0600716	10.1225499	10.1826215	57
4	9.8175235	9.8773401	9.9401835	10.0598165	10.1226599	10.1824765	56
5	9.8176685	9.8772300	9.9404385	10.0595615	10.1227700	10.1823315	55
6	9.8178133	9.8771198	9.9406936	10.0593064	10.1228802	10.1821867	54
7	9.8179581	9.8770096	9.9409486	10.0590514	10.1229904	10.1820419	53
8	9.8181028	9.8768993	9.9412036	10.0587964	10.1231007	10.1818972	52
9	9.8182474	9.8767889	9.9414585	10.0585415	10.1232111	10.1817526	51
10	9.8183919	9.8766785	9.9417135	10.0582865	10.1233215	10.1816081	50
11	9.8185364	9.8765680	9.9419684	10.0580316	10.1234320	10.1814636	49
12	9.8186807	9.8764574	9.9422233	10.0577767	10.1235426	10.1813193	48
13	9.8188250	9.8763468	9.9424782	10.0575218	10.1236532	10.1811750	47
14	9.8189692	9.8762361	9.9427331	10.0572669	10.1237639	10.1810308	46
15	9.8191133	9.8761253	9.9429879	10.0570121	10.1238747	10.1808867	45
16	9.8192573	9.8760145	9.9432428	10.0567572	10.1239855	10.1807427	44
17	9.8194012	9.8759036	9.9434976	10.0565024	10.1240964	10.1805988	43
18	9.8195450	9.8757927	9.9437524	10.0562476	10.1242073	10.1804550	42
19	9.8196888	9.8756816	9.9440072	10.0559928	10.1243184	10.1803112	41
20	9.8198325	9.8755706	9.9442619	10.0557381	10.1244294	10.1801675	40
21	9.8199761	9.8754594	9.9445166	10.0554834	10.1245406	10.1800239	39
22	9.8201196	9.8753482	9.9447714	10.0552286	10.1246518	10.1798804	38
23	9.8202630	9.8752369	9.9450261	10.0549739	10.1247631	10.1797370	37
24	9.8204063	9.8751256	9.9452807	10.0547193	10.1248744	10.1795937	36
25	9.8205496	9.8750142	9.9455354	10.0544646	10.1249858	10.1794504	35
26	9.8206927	9.8749027	9.9457900	10.0542100	10.1250973	10.1793073	34
27	9.8208358	9.8747912	9.9460447	10.0539553	10.1252088	10.1791642	33
28	9.8209788	9.8746795	9.9462993	10.0537007	10.1253205	10.1790212	32
29	9.8211217	9.8745679	9.9465539	10.0534461	10.1254321	10.1788783	31
30	9.8212646	9.8744561	9.9468084	10.0531916	10.1255439	10.1787354	30
31	9.8214073	9.8743443	9.9470630	10.0529370	10.1256557	10.1785927	29
32	9.8215500	9.8742325	9.9473175	10.0526825	10.1257675	10.1784500	28
33	9.8216926	9.8741205	9.9475720	10.0524280	10.1258795	10.1783074	27
34	9.8218351	9.8740085	9.9478265	10.0521735	10.1259915	10.1781649	26
35	9.8219775	9.8738965	9.9480810	10.0519190	10.1261035	10.1780225	25
36	9.8221198	9.8737844	9.9483355	10.0516645	10.1262156	10.1778802	24
37	9.8222621	9.8736722	9.9485899	10.0514101	10.1263278	10.1777379	23
38	9.8224042	9.8735599	9.9488443	10.0511557	10.1264401	10.1775958	22
39	9.8225463	9.8734476	9.9490987	10.0509013	10.1265524	10.1774537	21
40	9.8226883	9.8733352	9.9493531	10.0506469	10.1266648	10.1773117	20
41	9.8228302	9.8732227	9.9496075	10.0503925	10.1267773	10.1771698	19
42	9.8229721	9.8731102	9.9498619	10.0501381	10.1268898	10.1770279	18
43	9.8231138	9.8729976	9.9501162	10.0498838	10.1270024	10.1768862	17
44	9.8232555	9.8728849	9.9503705	10.0496295	10.1271151	10.1767445	16
45	9.8233971	9.8727722	9.9506248	10.0493752	10.1272278	10.1766029	15
46	9.8235386	9.8726594	9.9508791	10.0491209	10.1273406	10.1764614	14
47	9.8236800	9.8725466	9.9511334	10.0488666	10.1274534	10.1763200	13
48	9.8238213	9.8724337	9.9513876	10.0486124	10.1275663	10.1761787	12
49	9.8239626	9.8723207	9.9516419	10.0483581	10.1276793	10.1760374	11
50	9.8241037	9.8722076	9.9518961	10.0481039	10.1277924	10.1758963	10
51	9.8242448	9.8720945	9.9521503	10.0478497	10.1279055	10.1757552	9
52	9.8243858	9.8719813	9.9524045	10.0475955	10.1280187	10.1756142	8
53	9.8245267	9.8718681	9.9526587	10.0473413	10.1281319	10.1754733	7
54	9.8246676	9.8717548	9.9529128	10.0470872	10.1282452	10.1753324	6
55	9.8248083	9.8716414	9.9531670	10.0468330	10.1283586	10.1751917	5
56	9.8249490	9.8715279	9.9534211	10.0465789	10.1284721	10.1750510	4
57	9.8250896	9.8714144	9.9536752	10.0463248	10.1285856	10.1749104	3
58	9.8252301	9.8713008	9.9539293	10.0460707	10.1286992	10.1747699	2
59	9.8253705	9.8711872	9.9541834	10.0458166	10.1288128	10.1746295	1
60	9.8255109	9.8710735	9.9544374	10.0455626	10.1289265	10.1744891	0

M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

48 Degrees.

42 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.8255107	9.8710735	9.9544374	10.0455626	10.1289265	10.1744891	60
1	9.8256512	9.8709597	9.9546915	10.0453085	10.1290403	10.1743488	59
2	9.8257913	9.8708458	9.9549455	10.0450545	10.1291542	10.1742087	58
3	9.8259314	9.8707319	9.9551995	10.0448005	10.1292681	10.1740686	57
4	9.8260715	9.8706179	9.9554535	10.0445465	10.1293821	10.1739285	56
5	9.8262114	9.8705039	9.9557075	10.0442925	10.1294961	10.1737886	55
6	9.8263512	9.8703898	9.9559615	10.0440385	10.1296102	10.1736488	54
7	9.8264910	9.8702756	9.9562154	10.0437846	10.1297244	10.1735090	53
8	9.8266307	9.8701613	9.9564694	10.0435306	10.1298387	10.1733693	52
9	9.8267703	9.8700470	9.9567233	10.0432767	10.1299530	10.1732297	51
10	9.8269098	9.8699326	9.9569772	10.0430228	10.1300674	10.1730902	50
11	9.8270493	9.8698182	9.9572311	10.0427689	10.1301818	10.1729507	49
12	9.8271887	9.8697037	9.9574850	10.0425150	10.1302963	10.1728113	48
13	9.8273279	9.8695891	9.9577389	10.0422611	10.1304109	10.1726721	47
14	9.8274671	9.8694744	9.9579927	10.0420073	10.1305256	10.1725329	46
15	9.8276063	9.8693597	9.9582465	10.0417535	10.1306403	10.1723937	45
16	9.8277453	9.8692449	9.9585004	10.0414996	10.1307551	10.1722547	44
17	9.8278843	9.8691301	9.9587542	10.0412458	10.1308699	10.1721157	43
18	9.8280231	9.8690152	9.9590080	10.0409920	10.1309848	10.1719769	42
19	9.8281619	9.8689002	9.9592618	10.0407382	10.1310998	10.1718381	41
20	9.8283006	9.8687851	9.9595155	10.0404845	10.1312149	10.1716994	40
21	9.8284393	9.8686700	9.9597693	10.0402307	10.1313300	10.1715607	39
22	9.8285778	9.8685548	9.9600230	10.0399770	10.1314452	10.1714222	38
23	9.8287163	9.8684396	9.9602767	10.0397233	10.1315604	10.1712837	37
24	9.8288547	9.8683242	9.9605305	10.0394695	10.1316758	10.1711453	36
25	9.8289930	9.8682088	9.9607842	10.0392158	10.1317912	10.1710070	35
26	9.8291312	9.8680934	9.9610378	10.0389622	10.1319066	10.1708688	34
27	9.8292694	9.8679779	9.9612915	10.0387085	10.1320221	10.1707306	33
28	9.8294075	9.8678623	9.9615452	10.0384548	10.1321377	10.1705925	32
29	9.8295454	9.8677466	9.9617988	10.0382012	10.1322534	10.1704546	31
30	9.8296833	9.8676309	9.9620525	10.0379475	10.1323691	10.1703167	30
31	9.8298212	9.8675151	9.9623061	10.0376939	10.1324849	10.1701788	29
32	9.8299589	9.8673992	9.9625597	10.0374403	10.1326008	10.1700411	28
33	9.8300966	9.8672833	9.9628133	10.0371867	10.1327167	10.1699034	27
34	9.8302341	9.8671673	9.9630669	10.0369331	10.1328327	10.1697658	26
35	9.8303717	9.8670512	9.9633204	10.0366796	10.1329488	10.1696283	25
36	9.8305091	9.8669351	9.9635740	10.0364260	10.1330649	10.1694909	24
37	9.8306464	9.8668189	9.9638275	10.0361725	10.1331811	10.1693536	23
38	9.8307837	9.8667026	9.9640811	10.0359189	10.1332974	10.1692163	22
39	9.8309209	9.8665863	9.9643346	10.0356654	10.1334137	10.1690791	21
40	9.8310580	9.8664699	9.9645881	10.0354119	10.1335301	10.1689420	20
41	9.8311950	9.8663534	9.9648416	10.0351584	10.1336466	10.1688050	19
42	9.8313320	9.8662369	9.9650951	10.0349049	10.1337631	10.1686680	18
43	9.8314688	9.8661203	9.9653486	10.0346514	10.1338797	10.1685312	17
44	9.8316056	9.8660036	9.9656020	10.0343980	10.1339964	10.1683944	16
45	9.8317423	9.8658868	9.9658555	10.0341445	10.1341132	10.1682577	15
46	9.8318789	9.8657700	9.9661089	10.0338911	10.1342300	10.1681211	14
47	9.8320155	9.8656531	9.9663623	10.0336377	10.1343469	10.1679845	13
48	9.8321519	9.8655362	9.9666157	10.0333843	10.1344638	10.1678481	12
49	9.8322883	9.8654192	9.9668692	10.0331308	10.1345808	10.1677117	11
50	9.8324246	9.8653021	9.9671225	10.0328775	10.1346979	10.1675754	10
51	9.8325609	9.8651849	9.9673759	10.0326241	10.1348151	10.1674391	9
52	9.8326970	9.8650677	9.9676293	10.0323707	10.1349323	10.1673030	8
53	9.8328331	9.8649504	9.9678827	10.0321173	10.1350496	10.1671669	7
54	9.8329691	9.8648331	9.9681360	10.0318640	10.1351669	10.1670309	6
55	9.8331050	9.8647156	9.9683893	10.0316107	10 1352844	10.1668950	5
56	9.8332408	9.8645981	9.9686427	10.0313573	10.1354019	10.1667592	4
57	9.8333766	9.8644806	9.9688960	10.0311040	10.1355194	10.1666234	3
58	9.8335122	9.8643629	9.9691493	10.0308507	10.1356371	10.1664878	2
59	9.8336478	9.8642452	9.9694026	10.0305974	10.1357548	10.1663522	1
60	9.8337833	9.8641275	9.9696559	10.0303441	10.1358725	10.1662167	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

47 Degrees.

43 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.8337833	9.8641275	9.9696559	10.0303441	10.1358725	10.1662167	60
1	9.8339188	9.8640096	9.9699091	10.0300909	10.1359904	10.1660812	59
2	9.8340541	9.8638917	9.9701624	10.0298376	10.1361083	10.1659459	58
3	9.8341894	9.8637737	9.9704157	10.0295843	10.1362263	10.1658106	57
4	9.8343246	9.8636557	9.9706689	10.0293311	10.1363443	10.1656754	56
5	9.8344597	9.8635376	9.9709221	10.0290779	10.1364624	10.1655403	55
6	9.8345948	9.8634194	9.9711754	10.0288246	10.1365806	10.1654052	54
7	9.8347297	9.8633011	9.9714286	10.0285714	10.1366989	10.1652703	53
8	9.8348646	9.8631828	9.9716818	10.0283182	10.1368172	10.1651354	52
9	9.8349994	9.8630644	9.9719350	10.0280650	10.1369356	10.1650006	51
10	9.8351341	9.8629460	9.9721882	10.0278118	10.1370540	10.1648659	50
11	9.8352688	9.8628274	9.9724413	10.0275587	10.1371726	10.1647312	49
12	9.8354033	9.8627088	9.9726945	10.0273055	10.1372912	10.1645967	48
13	9.8355378	9.8625902	9.9729477	10.0270523	10.1374098	10.1644622	47
14	9.8356722	9.8624714	9.9732008	10.0267992	10.1375286	10.1643278	46
15	9.8358066	9.8623526	9.9734539	10.0265461	10.1376474	10.1641934	45
16	9.8359408	9.8622338	9.9737071	10.0262929	10.1377662	10.1640592	44
17	9.8360750	9.8621148	9.9739602	10.0260398	10.1378852	10.1639250	43
18	9.8362091	9.8619958	9.9742133	10.0257867	10.1380042	10.1637909	42
19	9.8363431	9.8618767	9.9744664	10.0255336	10.1381283	10.1636569	41
20	9.8364771	9.8617576	9.9747195	10.0252805	10.1382424	10.1635229	40
21	9.8366109	9.8616383	9.9749726	10.0250274	10.1383617	10.1633891	39
22	9.8367447	9.8615190	9.9752257	10.0247743	10.1384810	10.1632553	38
23	9.8368784	9.8613997	9.9754787	10.0245213	10.1386003	10.1631216	37
24	9.8370121	9.8612803	9.9757318	10.0242682	10.1387197	10.1629879	36
25	9.8371456	9.8611608	9.9759849	10.0240151	10.1388392	10.1628544	35
26	9.8372791	9.8610412	9.9762379	10.0237621	10.1389588	10.1627209	34
27	9.8374125	9.8609215	9.9764909	10.0235091	10.1390785	10.1625875	33
28	9.8375458	9.8608018	9.9767440	10.0232560	10.1391982	10.1624542	32
29	9.8376790	9.8606821	9.9769970	10.0230030	10.1393179	10.1623210	31
30	9.8378122	9.8605622	9.9772500	10.0227500	10.1394378	10.1621878	30
31	9.8379453	9.8604423	9.9775030	10.0224970	10.1395577	10.1620547	29
32	9.8380783	9.8603223	9.9777560	10.0222440	10.1396777	10.1619217	28
33	9.8382112	9.8602022	9.9780090	10.0219910	10.1397978	10.1617888	27
34	9.8383441	9.8600821	9.9782620	10.0217380	10.1399179	10.1616559	26
35	9.8384769	9.8599619	9.9785149	10.0214851	10.1400381	10.1615231	25
36	9.8386096	9.8598416	9.9787679	10.0212321	10.1401584	10.1613904	24
37	9.8387422	9.8597213	9.9790209	10.0209791	10.1402787	10.1612578	23
38	9.8388747	9.8596009	9.9792738	10.0207262	10.1403991	10.1611253	22
39	9.8390072	9.8594804	9.9795268	10.0204732	10.1405196	10.1609928	21
40	9.8391396	9.8593599	9.9797797	10.0202203	10.1406401	10.1608604	20
41	9.8392719	9.8592393	9.9800326	10.0199674	10.1407607	10.1607281	19
42	9.8394041	9.8591186	9.9802856	10.0197144	10.1408814	10.1605959	18
43	9.8395363	9.8589978	9.9805385	10.0194615	10.1410022	10.1604637	17
44	9.8396684	9.8588770	9.9807914	10.0192086	10.1411230	10.1603316	16
45	9.8398004	9.8587561	9.9810443	10.0189557	10.1412439	10.1601996	15
46	9.8399323	9.8586351	9.9812972	10.0187028	10.1413649	10.1600677	14
47	9.8400642	9.8585141	9.9815501	10.0184499	10.1414859	10.1599358	13
48	9.8401959	9.8583929	9.9818030	10.0181970	10.1416071	10.1598041	12
49	9.8403276	9.8582718	9.9820559	10.0179441	10.1417282	10.1596724	11
50	9.8404593	9.8581505	9.9823087	10.0176913	10.1418495	10.1595407	10
51	9.8405908	9.8580292	9.9825616	10.0174384	10.1419708	10.1594092	9
52	9.8407223	9.8579078	9.9828145	10.0171855	10.1420922	10.1592777	8
53	9.8408537	9.8577863	9.9830673	10.0169327	10.1422137	10.1591463	7
54	9.8409850	9.8576648	9.9833202	10.0166798	10.1423352	10.1590150	6
55	9.8411162	9.8575432	9.9835730	10.0164270	10.1424568	10.1588838	5
56	9.8412474	9.8574215	9.9838259	10.0161741	10.1425785	10.1587526	4
57	9.8413785	9.8572998	9.9840787	10.0159213	10.1427002	10.1586215	3
58	9.8415095	9.8571779	9.9843315	10.0156685	10.1428221	10.1584905	2
59	9.8416404	9.8570561	9.9845844	10.0154156	10.1429439	10.1583596	1
60	9.8417713	9.8569341	9.9848372	10.0151628	10.1430659	10.1582287	0

M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant.	Secant.	M

46 Degrees.

44 Degrees.

M	Sine.	Co-fine.	Tangent	Co-tang.	Secant.	Co-fecant	M
0	9.8417713	9.8569341	9.9848372	10.0151628	10.1430659	10.1582287	60
1	9.8419021	9.8568121	9.9850900	10.0149100	10.1431879	10.1580979	59
2	9.8420328	9.8566900	9.9853428	10.0146572	10.1433100	10.1579672	58
3	9.8421634	9.8565678	9.9855956	10.0144044	10.1434322	10.1578366	57
4	9.8422939	9.8564455	9.9858484	10.0141516	10.1435545	10.1577061	56
5	9.8424244	9.8563232	9.9861012	10.0138988	10.1436768	10.1575756	55
6	9.8425548	9.8562008	9.9863540	10.0136460	10.1437992	10.1574452	54
7	9.8426851	9.8560784	9.9866068	10.0133932	10.1439216	10.1573149	53
8	9.8428154	9.8559558	9.9868596	10.0131404	10.1440442	10.1571846	52
9	9.8429456	9.8558332	9.9871123	10.0128877	10.1441668	10.1570544	51
10	9.8430757	9.8557106	9.9873651	10.0126349	10.1442894	10.1569243	50
11	9.8432057	9.8555878	9.9876179	10.0123821	10.1444122	10.1567943	49
12	9.8433356	9.8554650	9.9878706	10.0121294	10.1445350	10.1566644	48
13	9.8434655	9.8553421	9.9881234	10.0118766	10.1446579	10.1565345	47
14	9.8435953	9.8552192	9.9883761	10.0116239	10.1447808	10.1564047	46
15	9.8437250	9.8550961	9.9886289	10.0113711	10.1449039	10.1562750	45
16	9.8438547	9.8549730	9.9888816	10.0111184	10.1450270	10.1561453	44
17	9.8439842	9.8548499	9.9891344	10.0108656	10.1451501	10.1560158	43
18	9.8441137	9.8547266	9.9893871	10.0106129	10.1452734	10.1558863	42
19	9.8442432	9.8546033	9.9896399	10.0103601	10.1453967	10.1557568	41
20	9.8443725	9.8544799	9.9898926	10.0101074	10.1455201	10.1556275	40
21	9.8445018	9.8543564	9.9901453	10.0098547	10.1456436	10.1554982	39
22	9.8446310	9.8542329	9.9903981	10.0096019	10.1457671	10.1553690	38
23	9.8447601	9.8541093	9.9906508	10.0093492	10.1458907	10.1552399	37
24	9.8448891	9.8539856	9.9909035	10.0090965	10.1460144	10.1551109	36
25	9.8450181	9.8538619	9.9911562	10.0088438	10 1461381	10.1549819	35
26	9.8451470	9.8537381	9.9914089	10.0085911	10.1462619	10.1548530	34
27	9.8452758	9.8536142	9.9916616	10.0083384	10.1463858	10.1547242	33
28	9.8454045	9.8534902	9.9919143	10.0080857	10.1465098	10.1545955	32
29	9.8455332	9.8533662	9.9921670	10.0078330	10.1466338	10.1544668	31
30	9.8456618	9.8532421	9.9924197	10.0075803	10.1467579	10.1543382	30
31	9.8457903	9.8531179	9.9926724	10.0073276	10.1468821	10.1542097	29
32	9.8459188	9.8529936	9.9929251	10.0070749	10.1470064	10.1540812	28
33	9.8460471	9.8528693	9.9931778	10.0068222	10.1471307	10.1539529	27
34	9.8461754	9.8527449	9.9934305	10.0065695	10.1472551	10.1538246	26
35	9.8463036	9.8526204	9.9936832	10.0063168	10.1473796	10.1536964	25
36	9.8464318	9.8524959	9.9939359	10.0060641	10.1475041	10.1535682	24
37	9.8465599	9.8523713	9.9941886	10.0058114	10.1476287	10.1534401	23
38	9.8466879	9.8522466	9.9944413	10.0055587	10.1477534	10.1533121	22
39	9.8468158	9.8521218	9.9946940	10.0053060	10.1478782	10.1531842	21
40	9.8469436	9.8519970	9.9949466	10.0050534	10.1480030	10.1530564	20
41	9.8470714	9.8518721	9.9951993	10.0048007	10.1481279	10.1529286	19
42	9.8471991	9.8517471	9.9954520	10.0045480	10.1482529	10.1528009	18
43	9.8473267	9.8516220	9.9957047	10.0042953	10.1483780	10.1526733	17
44	9.8474543	9.8514969	9.9959573	10.0040427	10.1485031	10.1525457	16
45	9.8475817	9.8513717	9.9962100	10.0037900	10.1486283	10.1524183	15
46	9.8477091	9.8512465	9.9964627	10.0035373	10.1487535	10.1522909	14
47	9.8478365	9.8511211	9.9967154	10.0032846	10.1488789	10.1521635	13
48	9.8479637	9.8509957	9.9969680	10.0030320	10.1490043	10.1520363	12
49	9.8480909	9.8508702	9.9972207	10.0027793	10.1491298	10.1519091	11
50	9.8482180	9.8507446	9.9974734	10.0025266	10.1492554	10.1517820	10
51	9.8483450	9.8506190	9.9977260	10.0022740	10.1493810	10.1516550	9
52	9.8484720	9.8504933	9.9979787	10.0020213	10.1495067	10.1515280	8
53	9.8485989	9.8503675	9.9982314	10.0017686	10.1496325	10.1514011	7
54	9.8487257	9.8502417	9.9984840	10.0015160	10.1497583	10.1512743	6
55	9.8488524	9.8501157	9.9987367	10.0012633	10.1498843	10.1511476	5
56	9.8489791	9.8499897	9.9989893	10.0010107	10.1500103	10.1510209	4
57	9.8491057	9.8498637	9.9992420	10.0007580	10.1501363	10.1508943	3
58	9.8492322	9.8497375	9.9994947	10.0005053	10.1502625	10.1507678	2
59	9.8493586	9.8496113	9.9997473	10.0002527	10.1503887	10.1506414	1
60	9.8494850	9.8494850	10.0000000	10.0000000	10.1505150	10.1505150	0
M	Co-fine.	Sine.	Co-tang.	Tangent	Co-fecant	Secant.	M

45 Degrees.

A

TRAVERSE TABLE,

CONTAINING THE

DIFFERENCE OF LATITUDE

AND DEPARTURE,

To every Degree and Quarter-Point of the Compaſs or Horizon.

USE OF THE TRAVERSE TABLE.

THIS Table expreſſes the ſides and angles of right-angled plane triangles, the difference of latitude and departure being repreſented by the two legs, the diſtance by the hypothenuſe, and the courſe and its complement, by the two acute-angles. Any two of theſe being given, except the acute-angles, the other parts of the triangle may be found by inſpection; provided the courſe be in points, quarter-points, or any even number of degrees.

If the courſe be given in degrees and minutes, and the number of minutes under 30′, they are rejected, and the given degrees are reckoned as the courſe; but if the minutes be above 30′, the number of degrees given are increaſed by 1° for the courſe.

The diſtances 1, 2, 3, &c. at the top and bottom may be accounted 10, 20, 30, &c. or, 100, 200, 300, &c. if the minutes of latitude and departure, anſwering to the courſe, be increaſed in the ſame proportion, which is done by moving the decimal point one or two places to the right. If the diſtance conſiſt of two or three ſignificant figures, the difference of latitude and departure muſt be ſought for each figure ſeparately, and then added.

PROB. I. *The courſe and diſtance given to find the difference of latitude and departure.*

Find the courſe, or the neareſt to it, in the right or left-hand column, and in a ſtraight line with it under or above the given diſtance, you have the difference of latitude and departure.

Ex. 1. A ſhip ſails W.S.W. 90 miles, required her difference of latitude and departure?

Courſe.	Diſt.	Diff. lat.	Depar.
6 Points	90 =	34.441 —	83.149 *Anſwer.*

2. A ſhip ſails N.N.E. ½ E, until her diſtance by the log-line, is found to be 75 miles, what is her difference of latitude and departure?

Courſe.	Diſt.	Diff. lat.	Depar.
2½ Points.	70 =	61.734 —	32.998
	5 =	4.4096 —	2.357
	75 =	66.1436 —	35.355 *Anſwer.*

3. A ſhip ſails 246 miles on a courſe S. 48° 15′ E. required the difference of latitude and departure?

Courſe.	Diſt.	Diff. lat.	Depar.
48° —	200 =	133.83 —	148.03
	40 =	26.765 —	29.726
	6 =	4.0148 —	4.4589
	246 =	164.6098 —	182.2149 *Anſwer.*

In this example the number of minutes being under 30′, are omitted, and the courſe is 48°; but if the minutes had been above 30′, the courſe would have been 49°.

To work a Traverſe.

Find the difference of latitude and departure for each courſe, as above, and place them in columns marked North or South, and Eaſt or Weſt, reſpectively; the difference of the columns North and South will be the the difference of latitude, and the difference of the columns Eaſt and Weſt will be the departure the ſhip has made good in the whole traverſe.

Ex. A ſhip ſails the following courſes, *viz.* S.S.W. 54 miles, W. by S. 39 miles, N.W. by N. 40 miles, N.E. by E. 69 miles, and N.N.W. 60 miles; I demand the difference of latitude and departure?

Traverſe Table.

Courſes.	Pts.	Diſt.	Diff. of lat.		Departure.	
			North.	South.	Eaſt.	Weſt.
S.S.W.	2	54		49.89		20.66
W. by S.	7	39		7.60		38.25
N.W. by N.	3	40	33.25			22.22
N.E. by E.	5	69	38.33		57.36	
N.N.W.	2	60	55.43			22.96
			127.01	57.49	57.36	104.09
			57.49			57.36
Diff. of lat. N. = 69.52					Dep. W. = 46.73	

PROB. II. *Difference of latitude and departure given, to find the courſe and diſtance.*

Seek in the table till you find together the difference of latitude and departure, which are neareſt to what are given, and in the marginal columns, directly oppoſite, you will find the courſe, and at the top or bottom of the column, where the difference of latitude and departure are found, ſtands the diſtance.

If the difference of latitude and departure given cannot be found nearly, in the table, take any aliquot parts of them, theſe will give you the ſame courſe as the whole, but the diſtance found muſt be multiplied by the ſame figure, the given terms were divided by, for the whole diſtance.

Ex. 1. Given difference of latitude 58.5 miles ſouth, and the departure 39 miles weſt; required the courſe and diſtance?

In this example the difference of latitude and departure are found in the column marked 7, which gives 70 miles for the diſtance, and on the margin ſtands 34° Weſtward, for the courſe, being nearly S. W. by W.

2. Given the difference of latitude 86.2 miles S. and the departure 42 miles E; what are the courſe and diſtance?

In this example the numbers themſelves are not to be found together in the table, but $\frac{1}{12}$ of them 7.18 and 3.5 are found together, under the diſtance 8 which multiplied by 12 gives 96 miles, the whole diſtance; and on the margin is 26° S. Eaſtward, the true courſe.

Difference of Lat. and Departure

Course. Pts	D.	Dist. 1. Lat.	Dist. 1. Dep.	Dist. 2. Lat.	Dist. 2. Dep.	Dist. 3. Lat.	Dist. 3. Dep.	Dist. 4. Lat.	Dist. 4. Dep.	Dist. 5. Lat.	Dist. 5. Dep.	Course. D.	Course. Pts
	1	0.9990	0.0175	1.9997	0.0349	2.9995	0.0524	3.9994	0.0698	4.9992	0.0873	89	
	2	0.9981	0.0349	1.9984	0.0698	2.9982	0.1047	3.9976	0.1396	4.9970	0.1745	88	
0 ¼		0.9988	0.0491	1.9976	0.0981	2.9964	0.1472	3.9952	0.1963	4.9940	0.2453		7 ¾
	3	0.9986	0.0523	1.9973	0.1047	2.9959	0.1570	3.9945	0.2093	4.9931	0.2617	87	
¼	4	0.9976	0.0698	1.9951	0.1395	2.9927	0.2093	3.9903	0.2790	4.9878	0.3488	86	
	5	0.9962	0.0872	1.9924	0.1743	2.9886	0.2615	3.9848	0.3486	4.9810	0.4358	85	
0 ½		0.9952	0.0980	1.9904	0.1960	2.9856	0.2940	3.9807	0.3921	4.9759	0.4901		7 ½
	6	0.9945	0.1045	1.9890	0.2091	2.9836	0.3136	3.9781	0.4181	4.9726	0.5226	84	
	7	0.9925	0.1219	1.9851	0.2437	2.9776	0.3656	3.9702	0.4875	4.9627	0.6093	83	
	8	0.9903	0.1392	1.9805	0.2783	2.9708	0.4175	3.9611	0.5567	4.9513	0.6959	82	
0 ¾		0.9892	0.1467	1.9784	0.2935	2.9675	0.4402	3.9567	0.5869	4.9459	0.7337		7 ¼
	9	0.9877	0.1564	1.9754	0.3129	2.9631	0.4693	3.9508	0.6257	4.9384	0.7822	81	
	10	0.9848	0.1736	1.9696	0.3473	2.9544	0.5209	3.9392	0.6946	4.9240	0.8682	80	
	11	0.9816	0.1908	1.9632	0.3816	2.9449	0.5724	3.9265	0.7632	4.9081	0.9540	79	
1		0.9808	0.1951	1.9616	0.3902	2.9424	0.5853	3.9231	0.7804	4.9039	0.9754		7
	12	0.9781	0.2079	1.9563	0.4158	2.9344	0.6237	3.9126	0.8316	4.8907	1.0396	78	
	13	0.9744	0.2250	1.9487	0.4499	2.9231	0.6749	3.8975	0.8998	4.8718	1.1248	77	
	14	0.9703	0.2419	1.9406	0.4838	2.9108	0.7258	3.8812	0.9677	4.8515	1.2096	76	
		0.9700	0.2430	1.9401	0.4860	2.9101	0.7289	3.8801	0.9719	4.8502	1.2149		6 ¾
1 ¼	15	0.9659	0.2588	1.9319	0.5176	2.8978	0.7765	3.8637	1.0353	4.8296	1.2941	75	
	16	0.9613	0.2756	1.9225	0.5513	2.8838	0.8269	3.8450	1.1025	4.8063	1.3782	74	
		0.9569	0.2903	1.9139	0.5806	2.8708	0.8709	3.8278	1.1611	4.7847	1.4514		6 ½
1 ½	17	0.9563	0.2924	1.9127	0.5847	2.8689	0.8771	3.8252	1.1695	4.7815	1.4619	73	
	18	0.9511	0.3090	1.9021	0.6180	2.8532	0.9271	3.8042	1.2361	4.7553	1.5451	72	
	19	0.9455	0.3256	1.8910	0.6511	2.8366	0.9767	3.7821	1.3023	4.7276	1.6278	71	
1		0.9415	0.3369	1.8831	0.6738	2.8246	1.0107	3.7662	1.3476	4.7077	1.6844		6 ¼
	20	0.9397	0.3420	1.8794	0.6840	2.8191	1.0261	3.7588	1.3681	4.6985	1.7101	70	
	21	0.9336	0.3584	1.8672	0.7167	2.8007	1.0751	3.7343	1.4335	4.6679	1.7918	69	
	22	0.9272	0.3746	1.8544	0.7492	2.7816	1.1238	3.7087	1.4984	4.6359	1.8730	68	
		0.9239	0.3827	1.8478	0.7654	2.7716	1.1480	3.6955	1.5307	4.6194	1.9134		6
2	23	0.9205	0.3907	1.8410	0.7815	2.7615	1.1722	3.6820	1.5629	4.6025	1.9537	67	
	24	0.9135	0.4066	1.8270	0.8135	2.7406	1.2202	3.6542	1.6269	4.5677	2.0337	66	
	25	0.9063	0.4226	1.8126	0.8452	2.7189	1.2679	3.6252	1.6905	4.5315	2.1131	65	
2 ¼		0.9040	0.4276	1.8080	0.8551	2.7120	1.2827	3.6160	1.7102	4.5199	2.1378		5 ¾
	26	0.8988	0.4384	1.7976	0.8767	2.6964	1.3151	3.5952	1.7535	4.4940	2.1919	64	
	27	0.8910	0.4540	1.7820	0.9080	2.6730	1.3620	3.5640	1.8160	4.4550	2.2699	63	
	28	0.8829	0.4695	1.7659	0.9389	2.6488	1.4084	3.5318	1.8779	4.4147	2.3474	62	
		0.8819	0.4714	1.7638	0.9428	2.6458	1.4142	3.5277	1.8850	4.4096	2.3570		5 ½
2 ½	29	0.8746	0.4848	1.7492	0.9696	2.6239	1.4544	3.4985	1.9392	4.3731	2.4240	61	
	30	0.8660	0.5000	1.7320	1.0000	2.5981	1.5000	3.4641	2.0000	4.3301	2.5000	60	
		0.8577	0.5141	1.7155	1.0282	2.5732	1.5423	3.4309	2.0564	4.2886	2.5705		5 ¼
2 ¾	31	0.8572	0.5150	1.7143	1.0301	2.5715	1.5451	3.4287	2.0602	4.2858	2.5752	59	
	32	0.8480	0.5299	1.6961	1.0598	2.5441	1.5896	3.3922	2.1197	4.2402	2.6496	58	
	33	0.8387	0.5446	1.6775	1.0893	2.5160	1.6339	3.3547	2.1786	4.1934	2.7232	57	
		0.8315	0.5556	1.6629	1.1111	2.4944	1.6667	3.3259	2.2223	4.1573	2.7778		5
3	34	0.8290	0.5592	1.6581	1.1184	2.4871	1.6776	3.3162	2.2368	4.1452	2.7960	56	
	35	0.8192	0.5736	1.6383	1.1472	2.4575	1.7207	3.2766	2.2943	4.0958	2.8679	55	
	36	0.8090	0.5878	1.6180	1.1756	2.4271	1.7634	3.2361	2.3511	4.0451	2.9389	54	
		0.8032	0.5957	1.6064	1.1914	2.4096	1.7871	3.2128	2.3828	4.0160	2.9785		4 ¾
3 ¼	37	0.7986	0.6018	1.5973	1.2036	2.3959	1.8054	3.1945	2.4073	3.9932	3.0091	53	
	38	0.7880	0.6157	1.5760	1.2313	2.3640	1.8470	3.1520	2.4626	3.9401	3.0783	52	
	39	0.7771	0.6293	1.5543	1.2586	2.3314	1.8880	3.1086	2.5173	3.8857	3.1466	51	
		0.7730	0.6344	1.5460	1.2688	2.3190	1.9032	3.0920	2.5376	3.8650	3.1720		4 ½
3 ½	40	0.7660	0.6428	1.5321	1.2856	2.2981	1.9284	3.0642	2.5712	3.8302	3.2139	50	
	41	0.7547	0.6561	1.5094	1.3121	2.2641	1.9682	3.0188	2.6242	3.7736	3.2803	49	
	42	0.7431	0.6691	1.4803	1.3383	2.2294	2.0074	2.9726	2.6765	3.7157	3.3457	48	
		0.7410	0.6716	1.4819	1.3431	2.2229	2.0147	2.9638	2.6862	3.7048	3.3578		4 ¼
3 ¾	43	0.7314	0.6820	1.4628	1.3640	2.1941	2.0460	2.9254	2.7280	3.6568	3.4100	47	
	44	0.7193	0.6947	1.4387	1.3894	2.1580	2.0840	2.8774	2.7786	3.5967	3.4733	46	
	45	0.7071	0.7071	1.4142	1.4142	2.1213	2.1213	2.8284	2.8284	3.5355	3.5355	45	4
4		Dep.	Lat	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.		
Pts.	Deg.	Dist. 1.		Dist. 2.		Dist. 3.		Dist. 4.		Dist. 5.		Deg.	Pts.

Course. Pts.	D.	Dist. 6. Lat.	Dep.	Dist. 7. Lat.	Dep.	Dist. 8. Lat.	Dep.	Dist. 9. Lat.	Dep	Dist. 10. Lat.	Dep.	Course D.	Pts.
	1	5.9991	0.1047	6.9989	0.1222	7.9988	0.1396	8.9986	0.1571	9.9985	0.1745	89	
	2	5.9963	0.2094	6.9957	0.2443	7.9951	0.2792	8.9945	0.3141	9.9939	0.3490	88	
0 1/4		5.9928	0.2944	6.9916	0.3435	7.9904	0.3925	8.9892	0.4416	9.9880	0.4907		7 1/4
	3	5.9918	0.3140	6.9904	0.3664	7.9890	0.4187	8.9877	0.4710	9.9863	0.5234	87	
	4	5.9854	0.4185	6.9829	0.4883	7.9805	0.5580	8.9781	0.6278	9.9756	0.6976	86	
	5	5.9772	0.5229	6.9734	0.6101	7.9696	0.6972	8.9658	0.7844	9.9619	0.8716	85	
0 1/2		5.9711	0.5881	6.9663	0.6861	7.9615	0.7841	8.9567	0.8822	9.9518	0.9802		7 1/2
	6	5.9671	0.6272	6.9617	0.7317	7.9562	0.8362	8.9507	0.9408	9.9452	1.0453	84	
	7	5.9553	0.7312	6.9478	0.8531	7.9404	0.9750	8.9329	1.0968	9.9255	1.2187	83	
	8	5.9416	0.8350	6.9319	0.9742	7.9221	1.1134	8.9124	1.2526	9.9027	1.3917	82	
0 3/4		5.9351	0.8804	6.9242	1.0271	7.9134	1.1738	8.9026	1.3206	9.8918	1.4674		7 3/4
	9	5.9261	0.9386	6.9138	1.0950	7.9015	1.2515	8.8892	1.4079	9.8769	1.5643	81	
	10	5.9088	1.0419	6.8937	1.2155	7.8785	1.3892	8.8633	1.5628	9.8481	1.7365	80	
	11	5.8898	1.1449	6.8714	1.3357	7.8530	1.5265	8.8346	1.7173	9.8165	1.9081	79	
1		5.8847	1.1705	6.8655	1.3656	7.8463	1.5607	8.8271	1.7558	9.8079	1.9509		7
	12	5.8689	1.2478	6.8476	1.4554	7.8252	1.6633	8.8033	2.8712	9.7815	2.0791	78	
	13	5.8462	1.3497	6.8206	1.5746	7.7950	1.7990	8.7693	2.0246	9.7437	2.2495	77	
	14	5.8218	1.4515	6.7921	1.6935	7.7624	1.9354	8.7327	2.1773	9.7030	2.4192	76	
1 1/4		5.8202	1.4577	6.7902	1.7009	7.7602	1.9438	8.7303	2.1868	9.7003	2.4298		6 3/4
	15	5.7956	1.5520	6.7615	1.8117	7.7274	2.0706	8.6933	2.3294	9.6593	2.5882	75	
	16	5.7676	1.6538	6.7288	1.9295	7.6901	2.2051	8.6513	2.4807	9.6120	2.7562	74	
1 1/2		5.7416	1.7417	6.6986	2.0320	7.6555	2.3223	8.6125	2.6126	9.5694	2.9028		6 1/2
	17	5.7378	1.7542	6.6941	2.0466	7.6504	2.3390	8.6067	2.6313	9.5630	2.9237	73	
	18	5.7003	1.8541	6.6574	2.1631	7.6084	2.4721	8.5595	2.7812	9.5106	3.0902	72	
	19	5.6731	1.9538	6.6186	2.2790	7.5642	2.6045	8.5097	2.9301	9.4552	3.2557	71	
1		5.6493	2.0213	6.5908	2.3582	7.5324	2.6951	8.4739	3.0320	9.4154	3.3689		6 1/4
	20	5.6262	2.0921	6.5779	2.3941	7.5175	2.7362	8.4572	3.0782	9.3969	3.4202	70	
	21	5.6015	2.1502	6.5351	2.5086	7.4686	2.8669	8.4020	3.2253	9.3356	3.5837	69	
	22	5.5654	2.2476	6.4903	2.6222	7.4175	2.9969	8.3447	3.3745	9.2718	3.7461	68	
2		5.5533	2.2976	6.4772	2.6788	7.3910	3.0615	8.3149	3.4441	9.2388	3.8268		6
	23	5.5230	2.3444	6.4435	2.7351	7.3646	3.1238	8.2843	3.5106	9.2050	3.9075	67	
	24	5.4813	2.4404	6.3948	2.8472	7.3084	3.2539	8.2219	3.6606	9.1355	4.0674	66	
	25	5.4378	2.5337	6.3442	2.9583	7.2505	3.3880	8.1568	3.8036	9.0631	4.2262	65	
2 1/4		5.4239	2.5653	6.3279	2.9929	7.2319	3.4204	8.1359	3.8480	9.0399	4.2756		5 3/4
	26	5.3928	2.6302	6.2916	3.0686	7.1904	3.5070	8.0891	3.9453	8.9879	4.3837	64	
	27	5.3460	2.7239	6.2371	3.1779	7.1280	3.6319	8.0191	4.0859	8.9101	4.5399	63	
	28	5.2977	2.8168	6.1806	3.2863	7.0636	3.7558	7.9465	4.2252	8.8295	4.6947	62	
2 1/2		5.2915	2.8284	6.1734	3.2998	7.0554	3.7712	7.9373	4.2426	8.8192	4.7140		5 1/2
	29	5.2477	2.9089	6.1223	3.3937	6.9970	3.8785	7.8716	4.3633	8.7462	4.8481	61	
	30	5.1961	3.0000	6.0622	3.5000	6.9282	4.0000	7.7942	4.5000	8.6603	5.0000	60	
2 3/4		5.1464	3.0840	6.0041	3.5987	6.8618	4.1128	7.7196	4.6269	8.5773	5.1410		5 1/4
	31	5.1232	3.0902	6.0002	3.6052	6.8573	4.1203	7.7145	4.6373	8.5717	5.1504	59	
	32	5.0883	3.1795	5.9363	3.7094	6.7843	4.2394	7.6324	4.7693	8.4805	5.2992	58	
	33	5.0220	3.2648	5.8707	3.8125	6.7094	4.3571	7.5480	4.9018	8.3867	5.4464	57	
3		4.9888	3.3338	5.8203	3.8890	6.6518	4.4446	7.4832	5.0001	8.3147	5.5557		5
	34	4.9742	3.3552	5.8033	3.9144	6.6323	4.4735	7.4613	5.0327	8.2904	5.5919	56	
	35	4.9149	3.4415	5.7341	4.0150	6.5532	4.5880	7.3724	5.1622	8.1915	5.7358	55	
	36	4.8541	3.5267	5.6621	4.1145	6.4721	4.7023	7.2812	5.2901	8.0902	5.8779	54	
3 1/4		4.8192	3.5742	5.6224	4.1699	6.4257	4.7656	7.2289	5.3613	8.0321	5.9570		4 3/4
	37	4.7918	3.6109	5.5904	4.2127	6.3891	4.8145	7.1877	5.4163	7.9864	6.0182	53	
	38	4.7281	3.6940	5.5161	4.3096	6.3041	4.9253	7.0921	5.5409	7.8801	6.1560	52	
	39	4.6629	3.7759	5.4400	4.4052	6.2172	5.0346	6.9943	5.6639	7.7715	6.2922	51	
3 1/2		4.6381	3.8084	5.4111	4.4403	6.1841	5.0751	6.9571	5.7095	7.7310	6.3439		4 1/2
	40	4.5963	3.8567	5.3623	4.4995	6.1282	5.1423	6.8944	5.7851	7.6602	6.4279	50	
	41	4.5283	3.9360	5.2835	4.5924	6.0377	5.2488	6.7924	5.9045	7.5471	6.5606	49	
	42	4.4587	4.0143	5.2022	4.6839	5.9452	5.3535	6.6885	6.0222	7.4314	6.6913	48	
3 3/4		4.4457	4.0294	5.1867	4.7009	5.9276	5.3735	6.6685	6.0450	7.4095	6.7156		4 1/4
	43	4.3881	4.0954	5.1195	4.7740	5.8508	5.4566	6.5822	6.1387	7.3135	6.8200	47	
	44	4.3160	4.1679	5.0354	4.8626	5.7547	5.5573	6.4741	6.2519	7.1934	6.9466	46	
4	45	4.2426	4.2426	4.9497	4.9497	5.6569	5.6569	6.3640	6.3640	7.0711	7.0711	45	4
Pts.	Deg.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Deg.	Pts.
		Dist. 6.		Dist. 7.		Dist. 8.		Dist. 9.		Dist. 10.			

A Table of Rumbs, ſhewing the Degrees, Minutes, and Seconds, that every Point and Quarter-Point of the Compaſs makes with the Meridian.

North.		P.	q.	D.	M.	S.	P.	q.	South.	
		0	1	2	48	45	0	1		
		0	2	5	37	30	0	2		
		0	3	8	26	15	0	3		
N. b E.	N. b W.	1	0	11	15	0	1	0	S. b E.	S. b W.
		1	1	14	3	45	1	1		
		1	2	16	52	30	1	2		
		1	3	19	41	15	1	3		
N. N. E.	N. N. W.	2	0	22	30	0	2	0	S. S. E.	S. S. W.
		2	1	25	18	45	2	1		
		2	2	28	7	30	2	2		
		2	3	30	56	15	2	3		
N.E. b N.	N.W.b N.	3	0	33	45	0	3	0	S. E. b S.	S. W. b S
		3	1	36	33	45	3	1		
		3	2	39	22	30	3	2		
		3	3	42	11	15	3	3		
N. E.	N. W.	4	0	45	0	0	4	0	S. E.	S. W.
		4	1	47	48	45	4	1		
		4	2	50	37	30	4	2		
		4	3	53	26	15	4	3		
N. E. b E.	N.W.bW.	5	0	56	15	0	5	0	S. E b E.	S.W.bW.
		5	1	59	3	45	5	1		
		5	2	61	52	30	5	2		
		5	3	64	41	15	5	3		
E. N. E.	W. N.W.	6	0	67	30	0	6	0	E. S. E.	W. S. W.
		6	1	70	18	45	6	1		
		6	2	73	7	30	6	2		
		6	3	75	56	15	6	3		
E. b N.	W. b N.	7	0	78	45	0	7	0	E. b S.	W. b S.
		7	1	81	33	45	7	1		
		7	2	84	22	30	7	2		
		7	3	87	11	15	7	3		
East.	West.	8	0	90	0	0	8	0	East.	West.

THE END.